

THE English Improver, Or a New Survey of Husbandry.

Discovering to the Kingdome, That some
Land, both Arable and Pasture, may be Advanced
Double or Treble; Other Land to a Five or Tenfold;
And some to a Twenty fold Improvement: Yea, some
now not worth above One or Two shillings per Acre,
be made worth Thirty, or Forty, if not more.

Clearly demonstrated from Principles of sound Reason, Ingenuity
and late but most certaine Real Experiences.

Held forth under six Peeces of Improvement.:

1. By Flooding or Watering such Lands as are Capable thereof.
2. By Reducing Bggy or Drowned Land to sound Pasture.
3. By such a way of Ploughing and Corning old Cuckee Pasture, as to improve it; And by such a Method of Enclosure, as best provide for Poore. And all In crests without Depreciation.
4. By discovering Divers Materials for Soyle and Compost, with the nature and use of them, as both Tillage and Pasture be advanced as large as promised.
5. By such a New Plantation of diverse sorts of Woods, as in Twenty yeares, they shall rise more than in forty yeares naturally.
6. By a more Moderate Improvement of other sorts of Land, according to their Capacities they lye under, by more Certain Experiences.

By *Walter Blith* a Lover of Ingenuity.

Prov. 21. 5. The thoughts of the diligent bring about increase. A Diligent man stands by his words.
Eccles. 9. 10. All therefore that thy hands shall find to do, do it with all thy power, for there is neither wisdom nor knowledge in the grave, neither thou shalt go.

London, printed for J. Wright at the Kings Head in the Old-Barley. 1649.



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To those of the High and Honourable Houses of Parliament, whose vacancies from the great Building of the Kingdom will admit the Reading.

Right Honourable :

I Chuse rather to cast my selfe at Your Lordships Feet, and come under Your greatest Censure for this high Presumption, than to omit so necessary a Duty and Discovery as the substance of this Discourse Imports; Therefore dare not conceale the least Inconvenience that may befall the Publique, in your not apprehending the Prejudices hindring Improvement, nor your owne Capacities to remove them: And though I dare not present this Treatise unto Your Honours, because of the Rudenesse and weaknesse of it, to crave so high Patronage, yet

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I shall adventure these my most humble Representations of some Prejudices that remaine founded by a Law ; And of some other Obstacles, as firmly rooted by Corruption, that without Your Honours Power and Wildoms helpe therein , the Improvements here rendred will be in great measure hindered.

To which if Your Honours shall see cause to give Incouragement, either by an Addition of such Lawes as shall appeare unto you wanting, or Repealing such as hinder, I shall not question but Mens spirits will be raised to such Experimenting of the Principles of Ingenuity, as that we may see this Kingdome soone raised to her utmost fruitfulnessse and greatest glory.

The particulars are too many here to discourse at large ; I shall therefore take boldnesse to present some few, with some brief Reasons to evince the same ; and they are very great discouragements to the Ingenious and Active Prosecution of the Improvements of the Kingdome.

The first Prejudice is, That if a Tenant
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be at never so great pains or cost for the Improvement of his Land, he doth thereby but occasion a greater Rack upon himself, or else invests his Land-Lord into his cost and labour *gratis*, or at best lyes at his Land-Lords mercy for requitall; which occasions a neglect of all good Husbandry, to his own, the Land, the Land-Lord, and the Kingdomes suffering. Now this I humbly conceive may be removed, if there were a Law Inacted, whereby every Land-Lord should be obliged, either to give him reasonable allowance for his cleare Improvement, or else suffer him or his to enjoy it so much longer as till he hath had a Proportionable requitall; of which the Tenant being secured, he would act Ingenuity with violence as upon his owne, and draw forth the Earth to yeeld her utmost fruitfulnessse; which once being wrought unto to perfection, will easily be maintained and kept up at the height of fruitfulnessse, which will be the Kingdomes great advantage: Some Tenants have Advanced Land from Twenty pounds to Forty; and depending upon the Land-

Lords favour have been wip't of all; and many Farmes by this uncertainty have bin impoverish'd and left under great disgrace, which might as well have been advanced.

The second Prejudice is against that great Improvement by floating Lands, which exposeth the Improver to Suit of Law for Turning a Watercourse, by Millers or others, which are minded to molest the Improvement, Although the Improvement be ten fold greater than the Prejudice can be, and the Advantage be as Publique and farre more than the others pretended losse can be.

My selfe am a President herein, I made a good Improvement upon a little Brooke above halfe a mile above a Water-Mill, I turned the Water course upon my Land, and turned it againe into the course halfe a mile before it came unto his Mill; he sues me at Common Law, and recovers against me; My Improvement was from six Load of Hay to Twenty, his prejudice little or nothing, for which no Composition would serve, but the Ruine of it; which by this Verdict was accomplished. Now,

Now, as I humbly conceive, were there some legall settlement, that where any damage should be made to any Miller or other, a reasonable satisfaction might be accepted, and they no way inabled (as now they are) to contest or molest a tenfold greater Improvement than their prejudice; for indeed it cannot be any the least prejudice in most mens workings, who with their under-Trenches do draine out all the Water againe so cleane, as nothing remains behinde but the sludge, fatnesse, or thicknesse of the Water; yea some Works, and very many of this nature, much strengthen the Millers streame, where they cut through Raspy Boggy ground, and thence draw out a constant Spring, which before was choaked up, and could not breake forth, which runs along with the rest of the Water into his course or Dam, and increaseth his Water much thereby: For indeed the excellency of this peece is in drayning out all the Water againe, and going below any Springy Boggy matter, on purpose to fetch it out of the ground, which indeed is the Venome and poyson of it. The

The third Prejudice is, where all mens Lands lie intermixed in Common Fields or Meadows; The Ingenious are disabled to the Improving theirs, because others will not, neither sometimes can the Improvement be made upon any, unlesse upon all joyntly, or else upon an unsupportable Charge or Burthen.

The remedy whereof may be in commanding them either unto a loving Conjunction in the Improvement, or else disabling any one to hinder another that is desirous of it, giving such recompence for any damage he shall make, as shall be adjudged reasonable by indifferent men.

A fourth Prejudice is Unlimited Commons, or Commoning without Stint, upon any Heath, Moore, Forrest, or other Common; This is a great Prejudice to many poore men, both Cottyers and Land-Holders, who have not of their owne to stock their Commons, and so lose all, that have least need, and for whom those Commons were chiefly intended: And also a great hinderance to all; for being without that,
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every man layes on at randome, and as many as they can get, and so Overstock the same, that ordinarily they pine and starve their Goods therein; and once in foure or five Yeares you shall observe such a Rott of Sheep, that all that the Oppressor hath gained by eating out his poore Neighbours all the other Yeares, is swept away in one, and so little advantage redoundeth to any: So that many thousand Acres of Land are as it were uselesse, which were all men limited according to their Proportion of Land or Dwellings to which the Common is due, the Poore that could not stock theirs, might set them, and reape some benefit by them: And were they easily stinted, their Commons might be as good as their owne Severals to every man that hath Interest.

A fift Prejudice is the want of a through Searching of the Bowels of the Earth, a businesse more fit to be undertaken by the Honourable Representation of this whole Kingdome, than by any particular man; Whence are all our Mines of Lead, Tinne,
Iron,

Iron, Coales, and Silver Mines in *Wales*, were they not once hid, and as uncertaine as we are now certaine of them? and what should hinder but that in many places else the like may be discovered? as suppose Coale in *Northampton*, *Buckingham* and *Oxfordshire*, what a great benefit to those Countries would it be? Nay, if some sort of Stone could be but found out in some other parts, what might it arise unto? Nay, say that either Marle or Chalke, or some other Earth could be found in some parts of this Kingdome, how much would it enrich those parts; And who can say but Silver may as well be found in other places as in *Wales* or other parts of the World? I am sure that no man knowes but he that hath searched it, and the hundred thousand part of this Kingdom hath never yet been tryed.

There are divers other Prejudices, to which I have spoke more largely in some parts of the following Discourse, as they have fallen most naturally to be discoursed there, and therefore here will onely trouble Your Honours with the Heads thereof;

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you being the onliest Meanes for their Removall: As when any one mans sloathfulness or ill Husbandry offends or hinders his Neighbours Profits, Wel-being, or Better being, I humbly conceive they were better be forced by a Law thereto (themselves being the greatest Gayners; For I endeavour not to lay upon them the least losse or disadvantage) rather then that any particular man should be hindered or the Common-Weale, of the least benefit, which is the maine loser in the End by their Improvidences: If he will be Idle or Wilsull, let it be to himselfe, not to another.

The first is, That every man doth not kill his Moales or Woonts; The good Husband doth, and as fast as he destroyes them, the other, preserving a Magazine or Treasury of them, stores him againe, As fast as one builds the other destroyes, and so here is nothing but doing and undoing, No small Prejudice.

Another is, when the Second or Middle sort of Land, (as for the best sort of Land I leave to every mans pleasure, I presse no man thereto) which growes Old, Mossy, Banky, Rushy, filthy, and so yeelds little
(a) Profit,

profit in way of grazeing, is not broke up by Ploughing; and so Corned for the good of the Kingdome, so many Yeares as it may beare it without Prejudice, when it will beare Abundance, without any cost or charge bestowed, weaken it selfe no Penny, but rather Advance it, and maintaine many Soules in Labour, and Relieve many which are ready to be starved; which I humbly conceive I have manifestly cleared in the third Peece of this Discourse as very feasible. The Poore cry for it.

Another is, The not cutting straight such Water Course as may admit it, which are great Prejudices to Improvement; which cannot be done by some that would, because others will not joyne, Abundance of the best Land of the Kingdome is hereby lost, and much more corrupted with coldnesse and Boggynesse, and Cattell much endangered drowning, by reason of the Crookes and Angles in the Courses.

Another is, The Felling and Destroying of the gallant Timber of the Kingdome, which though I would not bar any man from making benefit of his owne, yet were it with us as it is in some Kingdomes ordered,

red, that where any falleth Timber, he might be commanded to Plant againe twice or thrice so much, and nourish it, and maintaine it till it come to such growth as that it might defend it selfe, it would remove a great deale of Offence to many, and a great losse to the whole Kingdome. A great hinderance of Improvement, and destroyer of Plenty it is.

The last is, Idlenesse, Sloath, and Drunkenesse, against which (I blesse God for them) we have wholsome Lawes already, which are now growne meere Scarcowes, men trample on them. Whence is all Peoples want of Callings, Streets filled with Idle Persons, the Countrey with Drones, the Roades with Hackers and Cut-throats, all Towns with Barrettors, Pamphlettors, Ballad-singers, Students of mischief, Provoking and Exasperating to more wickednesse, but want of Execution? I onely pray some such quickning Ordinance as may incourage all sober men to the Prosecution of these worse than Heathenish Abominations amongst us Christians; that such Penalties may be annexed, and such Power and countenance given to the Prosecutors,

as that they which neglect may be ashamed, and all other encouraged thereto.

All which great Annoyances and Annuances, are no way possibly removeable, but by Your Honours either compelling them to their owne Advantages by acting Ingenuity, or else so Encouraging others that are desirous thereof, that None may Prejudice Improvements, by denying any Liberty for carrying on the Worke, receiving reasonable satisfaction for the Damage. Which Proposals, though Unbecoming me to present, yet not Unworthy the grave and serious Consideration of Your Honours Wisdom, as being so much conducing to the Publique Welfare of the Kingdome, in which you are all Ingaged; which I leave before you untill the fittest season for your Lordships Consideration and actings, as may seeme to you most conducing to the good of all Concernments. The All-wise God guide you in your great Affaires, And make you gloriously Instrumentall to the Prosperity of the Nation.

*Which shall ever be the Prayer of your
Honours unworthiest Servant*

WALTER BLITH.

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The Epistle to the Ingenuous R E A D E R.

I May possibly seem a Barbarian to thee,
(though not to speake an unknowne
Tongue) at thy first View of this
Treatise, yet to hold forth a Discourse
Incredible I beseech thee doome it not
too deeply, untill thou hast wholly
read it, and then Censure it and me,
wherein cannot possibly but be great Defects, My selfe be-
ing all Defect. The Originall cause of this Discourse,
was occasioned by reason of the Authors ambition of
some Addition, to some rude Experiments he himselfe
had made, which occasioned him to such a diligent
Inquirie, both what had beene practised by any that he
could possibly heare of; That hee undertooke divers
Journes into severall parts of this Kingdome, to see
some Experiments made by divers Gentlemen therein.
All which are very good and worthie Imitation, but not
fully Satisfactorie to his Thirstie spirit, nor (utable to
his present practise.

Which Unsatisfiednesse, occasioned him also to
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make diligent Search throughout the great Citie, in most Statishners Shops there, not questioning Satisfaction to his owne desire; but there found little to his Satisfaction neither; Yet some few there are that have beene very usefull to many men, which have much of the Theoric of Husbandrie in them, wherein they hold forth many good Directions and Prescriptions, now well knowne, and many of them practised in this Kingdome. Therefore I shall forbear to say any thing at all to those particulars, My course steering another way; Onely I shall declare my Opinion of some of their Workes, and Principles, and so proceed.

There are divers Pieces of Master Markhams, which containe much for Profit, and more for Recreation, And are Usefull, and have beene Advantagious to the Kingdome; who Treats of all things at large, that either concernes the Husbandman, with the good Housewife. And severall Instruments and Toolles to them belonging, that concerne the House, or Field, Cattell, Horse, and Sheepe. All matter and manner of Recreations, at home and abroad, with their Instruments also. All which, though old, and the spirits drained out; yet have beene very usefull to the Kingdome, and worthy much Honour.

There is also a great Book in Folio (called The Countrey Farme) Translated out of French; to me conceived of little use to us, at least holdeth forth to us, either Rarely, or Mystically, any improvement to purpose for this Kingdome. Master Gouge in his Husbandrie, also holdeth forth many things of the like nature, and to the same purpose as Mister Markham had done before him; As for Master Tusser, who Rimeth out of his Experi-

ences;

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ences; If thou delightest therein, thou mayst find things worth thy Observation. And one or two Writers were of little worth or excellency, which I forbare to mention. But Sir Francis Bacons Naturall Historie let it have high Esteeme, 'tis full of Rarities and Admiration for true Philosophie, and shall be acknowledged as A Sunne in the Theore, to these poore and low Moone-light discoveries, which are but meane Experiences of the lowest Practique Husbandrie; Onely the last I met withall is Master Gabriel Plats, who is very Rationall and Ingenious, with all which, or with which soever thou conversest, thou mayst find some Addition to thy owne experiences. Therefore having made some later Experiments my selfe, and found some profit and usefulness to the State therein, and finding scarce one word at all extant to these purposes, being prevailed with, by the Importunitie of some Freinds to communicate the same to publique view, Hoping thereby to give either Encouragement to some deeper and solid Practitioners to hold out their Experienced Principles, or else to Exasperate or provoke the offended, or Gaine-sayer, rather to reprove it; Which I shall accept most lovingly, especially seeing the occasion given is from a loving spirit, desiring a most cleare, Plaine, and Cordiall Information, to himselfe and Kingdome, by whom soever.

All which hath made me yeeld thereto, And so presents thee with a rude Draught of some of his owne Experiences, though purchis'd to himselfe at a Thousand fold dearer rate: Praying thee to accept them; And wherein thou art either able to Reprove, Admonish, or Direct the Author, he earnestly begs it of thee; And witheth the Opportunitie; Wherein he promisseth most
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thankesfully the returne, not onely of a large Acknowledgement from himselfe thereof, but shall declare thy Experiences to others also, for thy own prayse. All which have caused both his Thoughts and Practises to be made Legible, and himselfe the subject of every Opinion, Wise or Weake: And though Dogs barked, and joyne together in their Clamours against those they knew not; Yet Hopes the Ingenious honest Reader will not speake Evil or Condemne, before hearing, or offence given. But in some of the aforesaid Authors, something seemes worthy Reprehension (viz.) Their is such strict Directions, and such large Observations of the Seasons, Signes, and Planets, lesse considering the Nature of the Earth, and Seed, or God the bleaser of them both, as if Seeds, Hearbs, and Plants, were to be Set, Sowne, or Planted in the Moone, or Planets. Which Observations followed, they had need produce a double profit; for I am sure neither halfe the Corne, Seed, Hearbs, or Plants, would then be Sowne or Planted; Besides, their ridiculous and superstitious Tearmes, and Paintings, which I hope these dayes discover both the Vanitie and Wickednesse thereof, so as they are offensive to most in reading of them; That I should be thought to use words in vaine to reprehend them.

But to contend against any of their mistakes by way of Reprehension, I affect not; therefore let every mans Experience try the Issue. For I am sure in many things they have beene great Lights to our Horizon.

As for my Designe, 'tis so much different, that it should not prejudice thy practice of any former Prescriptions or Directions, but Incou rage thee to the tryall of them; and is onely to hold out some later Discoveries, of some

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six perticular Parcells or Pieces of Improvement, Experimented at the onely and proper cost of the Author; some One Piece whereof hath cost him some hundreds of pounds Discovering.

All which are therefore somewhat the more Credible, & in reason they are not only held forth by Demonstrations, But also are reall Experiments, and visible to any dubious and unbeleeving mind, if he please to take but one quarter of the pains for himselfe, as the Discoverer hath done for him, He may make his owne eyes the witnesse of the truth hereof. And if he will bring with him by way of Opposition, Substantiall Arguments and Demonstrations upon Experience, to convince him, and so prevent him of further Hazard, and the Kingdome of Delusion; Hee shall be as heartily welcome to the Author, as if hee came with such Acknowledgment as to bestow a great Pension on him for his Newes; Whose only End and Aime is, to Discover both some Lands Capable of Vast Advancement, as according to the common Principles and Experiences of the Kingdome, are deemed utterly incapable of any. And also to Discover some such Materialls to make the Improvement, as are unusually applyed to such purposes; Which are most of them so Meane, so Plaine, so Poore, so Cheape, so Simple; As will render the Issue somewhat Uncertaine and suspitious. And also to Discover a Capacitie in most of the Lands throughout the Kingdome to be under, as shall by the Application of the particulars Discourfed hereafter, render a most Considerable Improvement; Yea, as great as is here promised or glossed in the Title or Frontis-piece; And all by no other Charges or Expences, but such as the very Earth, the Seas, or Heavens, naturally offer or yeeld unto thee,

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and requires thy drawing forth the same to these Ends, Thine and the Kingdoms great Advantage. All wrought and perfected, onely at no other Cost, but by thy owne Ingenuitie, and the Labour, Paines, and Exercise of the poore Labourer; Whom thou mayst most gallantly relieve and maintaine, out of the very profit of his owne labour; Whom if thou sufferest to want Employment, thou must maintaine at thy owne proper cost and charges upon necessitie.

And yet by way of Caution let me tell thee, That some Pretending great things, and Themselves men Out-landish, have engaged deeply herein, and held forth Wonders, but ever upon the Charge and Expence of others. And have produced little but to themselves. A Gallant Maintainance whilst they have beene making their Experiments. And at last when all hath failed, a faire paire of heeles hath beene the gratest Advantage; As divers Dutch-men not many yeares since, travelling the Kingdome, under pretence of drawing Water, floating Land, and doing Wonders, Many Gentlemen in the Kingdome payd well for their Skill, and can witnesse with me the Truth and Issue. Others have professed great Improvements, by way of Oyling Seeds, and adding other Rich Compositions to the Lands, All farre beyond the Profit or Advance it ever yielded; and so have procured Patents for an Invention, more usefull to thy Admirati-on, then profitable in thy Imitation: Of all which beware. Others also pretend great Discoveries they can make, if they might have a Publique Stock to worke it, and a Patent for it, otherwise the Publique shall not share of their Inventions; And I beleevue some men are able to doe many things of great Advantage to a State; I

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wish they had more Publique Spirits; And that men were Publique more in Honouring & Recompensing Publique Services; When Private Actors cannot bear them. Yet be not discouraged, look thou to Duties, Were Ingenuitie the Fashion of the Times, This Kingdom would be the Paradise of the World; To Build Hospitalls, feed and cloath the Poore and naked, is highly commended of all, and truly it is worthy of high Honour, being done Rightly, and to a Right End; But this Discoverie would inable the Poore to feed and cloath themselves and others also. It is true, the World is full of Conceits and Phantasies, and my selfe cannot challenge Immunitie, for Reason it selfe hath sometimes deceived me, when Experience hath not concluded the question. And truly, though I have endeavoured hard to make out a Rationall Designe, yet am I at a stand (considering the temper of most Peoples spirits) to conclude it seasonable; not well knowing whether more Prosperitie & Plentie in this Nation, would be more consistent to the well-being of it, when they have it, then the present condition they now enjoy. But I will not disturbe my selfe with this, nor use any further Reprehensions of this nature, but will presume to lay this taske upon the Ministerie, who had, and still almost have forgot this Doctrine, and the Necessitie that lyes on them, to teach the people to Exercise and practice Diligence, and Activitie in their particular Callings: Old Pauls Rules, and Presidents, are almost worne out, and his Practice slighted; Yet I have so much hope in God, and Charitie towards our Ministerie, that I waite for a larger breaking forth of Light and Truth herein also; Yea, Answerable to this Gospel-glory, beginning now to dawne. Questions in Controversie, and Asking

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into one anothers Infirmities, have beene the Exercise of these Times, and ought to be the Shame of us; But our Duties at home, and in our Callings, both Generall and Particular, and the Abuse of them hath beene forgotten. This gallant grace of Love, so slighted, & so little pressed, that each is for himselfe, neither the great Advantage to the Publique, nor particular Countries, Families, or Persons, at all regarded. Which had this dutie of Faithfulnessse to God, and Countrey, and Activity in our particular Callings beene Dismysteried, and freely and Ingenuously urged upon the Conscience, would have Romfied the Suggard, and brought Ingenuitie into greater practice.

But to turne back from Rambling; Most Courteous Reader, let me beg away thy Prejudice, take heed of Calumniation; Say not such Improvements are Innovations before thou have proved them, as the Author hath by Irrefragable Demonstration, and Infalliable Experience. Consider Good Husbandrie, It is the Sincere Marrow, holding together the Joynts of Monarchie; And all Workmanship, without Invention and Activity, resolveth it selfe into the Workmans Belly. Adorne Improvement, for though a New World hath of late been Discovered, yet there is not an Occupation or Trade of finding them: Nor for ought I see, our English people Active in searching for them, so that it is to me matter of the greatest Lamentation, the death of One able Ingenious Publique man, more then thousand Drones, and his losse Unreparable. Let every man make the best use of what he hath attained, and but Experiment these Proposals, and the greatest part of this Land may maintaine a double number without all Question.

Study

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study Industry, Improvement is neither Father nor Mother unto Plenty, but I may say it is the Midwife that Facilitates the birth. See the Shiftings and Confusions men run themselves into for a poore Livelihood, and cannot attaine it; how would the Exercising of this Projection (if I may so call it without offence) prevent it, and open a way to their Comforts. Minde it, the Kingdome is in Misery and Penury, Plenty would be welcome; It is a great Argument to me to quicken the speedy Publication of it. I say no more, but Intreat thee if thou Reade any Reade all, or else thou canst not possibly gaine the cleare understanding of any parcell of it; for the Authors Rarrefesse, and Unaccustomednesse to writing Bookes, and his little time allotted him from Action, or Practise, and Engagements in some Publique service hath occasioned some Rudenesse, and Unmethodizednesse herein, which Another Opportunity may rectify; when possibly if God give Occasion, thou mayst have some other Additions, with a further Explanation or Enlargement of what is dubious; And although the Title Page holds forth Wonders beyond thy Credence, which may seeme at first a little to Amaze thee, considering so much Ingenuity now abroad, and so much turning and winding into all Naturall things by Sea and Land, yea into the very Bowels and spirits of them; so many Designes on foot, so many Projections every way to raise Wealth, Honour, and Greatnesse; that so poore a piece of Clay as I should come into Competition with the least of them is not my Intention, but as I have held forth more in the Frontispiece then 'tis possibly (as most men may conceive) should ever be clearly made good within (as is most usuall now adayes) which will

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be made good if thou wilt both seriously vouchsafe the reading of it over, and the Experimenting of what shall seeme most probablest, will draw forth such an Issue as will not only make thee as Covetous of further Persecution of the rest, As it hath done upon the Author, both in the Practice of the particulars, and in the Discovery of the same to open View: but will also render a proportionablenesse of Improvement to what is glossed. And though the Author is forced to too much Repetition or Wordiness to draw forth thy Credulity; as also to present many things as Actions, or Experiences of his owne, which some may deeme high Ostentation in him, And that it would have better become Another, than himselfe to be a Trumpeter of his own praise, to which he most humbly pray thy charitable thoughts of these three Reasons before thou judgest him: 1. That most of this Discourse was wrot & communicated to a special friend as Direction in the said particulars before, and so would have caused an Alteration of the whole frame thereof, which his Occasions would not beare, 2. Because he findes so much Abuse offered by many, in holding forth strange Affirmations proving but Conjectures, and Heare-sayers, as hath brought Ingenuity under greatest Scandall, and the Usual stile of new Projects and Devices, which None dare scorne when they are made Experiments. 3. Because the Subject treated of, though conceived the poorest and plainest Subject to be discoursed, and the best Progress for Perfection, made in the proofe thereof, of any Art, Mystery, or Calling practised and held forth in England, yet in the way it is held forth, thou wilt finde it in the Practice more Ambiguous then in the discourse, notwithstanding all my Appli-

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Applications to my owne Experiences, most necessary to be held forth as they are, both for the Clearer Illustration and Prooſe of what is affirmed, as alſo of the Discoveries of the place where it is to be ſcene; that in caſe thou art at a Stand in thy Beliefe, or at a Want in thy Practiſe, thou maiſt know where, and how to be releev'd; In which could the Author have been ſupplied, 'tis ſome odds whether this Piece had rendred it ſelfe unto the hazard of Acceptance, or Diſgrace, in ſo rude a manner; Wherein if thou wilt vouchſafe thy Charity, and but with patience Peruſe the whole, he hopes to have his End of thee. A faire Acceptance without Reproachings; who hath no more for preſent to trouble thee with in the Porch or Gate, but to commend thee to God, to whom he prayes thee commend thy ſelfe; And take him firſtly with thee in all thy Ingagements, who is originally in and over all; And ſo doing I ſhall bring thee into the Land or Paſture, where thy Practiſing theſe following directions, ſubſervient to the great Deſigne, Thy duty to God, I ſhall wiſh thee good ſpeed in ſerving thy Generation; and am

Still greedy of thine and the
Kingdomes proſperity.

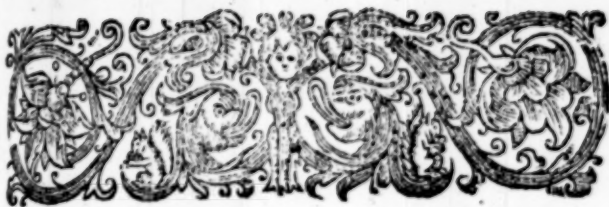
Walter Blith



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of



The severall wayes of Improvement, or Advancement, of the Lands of this Kingdome of England : Many whereof are undiscovered, and most of them little practised, which being experienced, would bee this Kingdoms glory, and a patterne to other Nations.



Or the discovery whereof, and discourse wherein (by Gods leave) some particulars shall be laid down as Generall s to be discoursed. And that I may speake to the understanding of all men, especially those who have little or nothing at all considered of such things, nor so much as ever suffered the practise part of Husbandry to come into their mindes ; or those who in respect of their more noble and high employments have lived and conversed in another Region, about the weighty affaires of the Kingdome, onely receiving and living upon the present profits of their Lands, not minding their Lands advance;

B

And

And others who have lived more above the creature, and conversed most in heaven, and so are more unacquainted with the language and tearmes of Husbandry: therefore I will deliver my selfe in our owne naturall country Language, and in our ordinary and usuall home-spun tearmes, especially because I can speake no other, and in as few words as I can possibly conceive it cleare to each apprehension; and therefore before I begin to enter the discourse at large, give me leave to premise the Excellency, Necessity, and Usefulnessse of Improvement, or good husbandry; And then the discourse shall follow under these two generall heads:

1 First I will discover the causes of Barrennesse upon all Land, and what corruptions both in the Land it selfe, and in mens opinions, praactices, and customs, must be removed; and then to each piece of improvement as they are laid downe in order; wherein will be discussed the whole method of Improvement.

2 The second generall, being the Remedies and Preventions of the said Barrennesse, and the meanes of reducing some to its utinost former fruitfulnessse, and Improving others to the greatest advantage it is capable of; wherein that great Improvement promised is held forth at large, all which will bee discoursed under

*Six Severall Heads or Pieces of Improvement
which are made good.*

1 **B**Y floating or watering all sorts of Lands which lie under that capacity.

2 By

Reduement of Land to pristine Fertility.

2 By drayning or reducing of Boggy or drowned Lands to firmenesse and fruitfulness.

3 Shall be the dividing of two foule extreames or Rocks many run upon in these dayes.

1 One is for Pasture and Grazing, that he will destroy all Tillage.

2 And the other for Tillage, so that he will destroy all Pasture and Inclosure.

A meane betwixt these in this way of Improvement provides first for the Poore, and then for all concerned, to wonderfull great advantage, without the least prejudice to any. One part, holds forth such a way of Inclosure, as advanceth all Interests.

And the other such a way of Ploughing old Pasture, not to the least prejudice, but to so great profit promised.

4 Fourth shall be a discovery of such simples or Materialls as Soyle compounded with the Earth, with the nature and use of both, so as thereby you shall raise so much more Corne unto this Kingdome, as shall make good the Improvement promised.

5 By a new Erection or Plantation of divers sorts of Woods and Timber, as in few yeares a man may make sufficient buildings thereof; yea upon divers sorts of Land in this Kingdome, at twenty yeares growth it will arise unto an incredible height and liness.

6 To this ile adde a sixth, a more moderate Improvement of all other Lands, to so high advance each will admit, by more familiar experiences, and more common waies of Husbandry; in all which particulars, the Improving men, wits and labours,
B 2 that

that have bodies made able for it, in such waies so advantageous to the Kingdome, as they thereby shall not only be comfortably provided for themselves, and Idlenesse, that root of mischief, ruined, but all Interests shall be much advanced; and for the further illustration, and making out the Improvements cleare, and easie to common apprehensions, I have divided the discourse into 25. Chapters.

C H A P. I.

Treateth of the Excellency, Necessity, and Usefulness of Improvement, and good Husbandry.

Excellency,
Necessity,
Antiquity,



Which appeareth partly by the Antiquity of it, for every thing is the more excellent, the more ancient, and nearer it comesto God, the first being of all things, which as all things nearest the Center move more strongly, so Excellency appeares most evidently the nearer, (if I may speake with reverence to that great Majesty) the great Husbandman, God himselfe. First in his making the world, he made all Creatures, and all Plants, Fruits, Trees, Herbes, and all bearing Seed, for the food of Man and Beast; He also made those more excellent and glorious Creatures, as the Light, the Day, and Night, the Firmament, the Earth, and Seas, the Sun, Moone, and Starrs, all to be serviceable, and ministers unto the Creatures reliefe, and all the creatures subservient to man, and man to husbandize the fruits of the earth, and dresse, and keepe them for the use of the Creature.

So

So God was the Originall, and first Husbandman, the paterne of all Husbandry, and first projector of that great designe, to bring that old Masse and Chaos of confusion unto so vast an Improvement, as all the world admires, and subsists from. And having given man such a Paterne both for precept and president for his encouragement, he makes him Lord of all untill the fall; And after that God intending the preservation of what he made, notwithstanding the great curse upon *Adam, Eve, & Serpent*, the Earth not going free, but a curse of Barrennesse cast upon it also, yet *Adam* is sent forth to till the Earth, and improve it, *In the sweat of his face he must eat bread untill he returne to the Earth againe.* Gen. 4. 2.

And so downe to *Cain* and *Abel*, the one Husbanding the Earth for Tillage, and the other the Sleepe in Pasturing, and Grazing; and so downe to *Noah*, he began to be an Husbandman; and to *Abraham*, and to *Jacob* and *Esaú*, and so along still till they came to Government by Kings, where *Uzziah* his commendation was *he loved Husbandry*, and many excellent things, as if Husbandry were the most excellent, as indeed it is here on Earth; else aske *Solomon* the wisest, the second Husbandman or Improver of the world, and you shall finde, how out of the depth of his experiences, he cryes up diligence and activity in good Husbandry, therefore sendeth us to the *Pisgare*, cryeth downe the *Sluggard*, and sloathfull, on whom commeth poverty as an armed man, and extols the diligent as fittest to converse with Kings, whose very thoughts bring abundance even of the dilligent whose hand and heart are

Gen. 9. 12.

2 Chr. 26. 11

PROV. 6. 6

PROV. 15. 19

PROV. 20. 30

PROV. 22. 21

PROV. 12. 24

best to beare rule, when the idle shall be under Tribute. But to multiply more Scripture, where all experience holds it so cleare, is but to prove a principle ungaine-said; ile say no more. But for the usefulness of it, it's no lesse then the maintenance of our Lives, Estate, the Kingdome, Common-wealth, and world, and the Improvement, or Advancement of the fruits and profits of the Earth by ingenuity, is little lesse then an addition of a new world, for what is gained hereby either above the naturall fruitfulness of the Earth, or else by reducement of that which is destroyed, or impoverished from his naturall fruitfulness, is a cleere Augmentation or Addition to the Common-wealth,

All other callings proceeding hence, the Earth being the very wombe that beares all, and the Mother that must nourish and maintaine all, The Merchant is a gallant servant to the State, he fetches it from farre, and tis a gallant enrichment to this Nation, but he purchaseth it from others, who could make profit of it, if he buy it not, raiseth it not out of nothing, but parts with good Silver or Gold, or some good commodity, for it.

But this Merchant of Husbandry, he raiseth it out of the Earth which otherwise would yeeld nothing, unlesse this ingenuity fetch it out, possibly never discovered to be there. And what parts he with? or at what rates purchaseth he it at? Even only with the wages of the labouring man, whom he is bound both by the Law of God, Nature, and the Land, to maintaine, who may be were he not maintained in worke would cost as much to be maintained idly. Oh! the Excellency,

Excellency, Antiquity, and Usefulness, of it. Improve the first, and chiefest of thy Spirits on God in omni-
fying him above all, and in all, and the rest of thy
wits and strength to serve thy station herein, ac-
compting it the second thing necessary, a blessing be-
ing upon the head of him that tilleth Corne, and the
thoughts of the diligent bring abundance. And so I pro-
ceed to the occasions of the Earths Barrennesse, be-
ing the first Generall of my discourse.

PROV. 11. 25

PROV. 21. 5

CHAP. II.

Sheweth forth The causes of Barrennesse.



They are usually two.

1 In man himselfe.

2 In the Land it selfe.

Causes of Bar-
rennesse

1 In man himselfe it was occasionally accidentall,
who by his sinne procured a curse upon the Land e-
ven Barrennesse it selfe, which by the sweat of his
browes must be reduced, if he will eat bread, and so
now is

2 In man naturally, which is the maine and
capitall cause of all, and is in him as I conceive
the Cause of Causes, which is Ignorance, occasioning
the prejudice men beare against Improvement,
especially that which is not of their owne devi-
ling, as all men naturally hate the true light of
God, because it discovers their darknesse, and
is contrary to their light, which is that of Nature and
Reason onely, The great enemies of Gospell Light.
So that parallel hereunto in some measure, is the
hatred

1 Cause of
Barrennesse is
ignorance oc-
casioneing pre-
judice.

hatred that many beare to any new Ingenuous discovery of that which is not under their ken or common practice, unlesse they can make it their owne contrivement, which ariseth from old *Adams* proud nature so rooted in ours, that wherein we cannot ascribe unto our selves the praise, we had rather lose the profit, then presently decry the same; This is no other but a principall of some young Brainick, or of one that would Monopolize more to his ten, twenty, or thirty yeares study and experience, then our fathers and fore-fathers attained in all their practices, or else some giddy head that will say more in halfe an houres discourse, then he will make good prooffe of in an Age. Or else it is an Experiment that will cost more then the profits thereof will counter-vaile, or else the Improvement is so great that they cannot possibly credit such Impossibilities, with innumerable more such passages; never putting forth their Minds, Hands, or Purles, to never so great and profitable an advantage, like the Sluggard, who will not plough, but saith, *A Lion is in the way*. And so, by feeding upon these or such like Prejudices, they suffocate their owne unspeakable advantage, which they might accomplish with setting on the works, and exercising a little patience in waiting for a through tryall. Although ile say it should be our rejoycing when any discovery is made, (chiefly of God) and then of that which shall concerne the publique good, be the Instrument what he will, and not ingaged therein for meere advantage onely as too many have done :

Holding forth specious Pretences of great wonders
and

Pro. 4. 13.

Pro. 26. 13.

and the condition hath ever been great gaine to the discoverer, and more then the worth of the discovery many times hath been, yet if the naked end be the Publick good, be the discovery what it will, or the Discoverer conceived neither of so deepe a head, nor of so long experience, as others have been, yes, though thou conceive it a Project so chargable, that will not answer the cost bestowed, or an advance so great as is not credible, yet consider if hee utter Reason, Art, or honesty, and especially where he offereth experience for the prooffe thereof, have thou patience to consider thereof, if thou wilt not make triall of it, his is the paines, and if to any it is thy Gaines, he hath but his labour for his travell.

The second Hindrance as in respect of the owner, or occupier thereof is Idlenesse, Improvidence, and a slavish Custome, of some old forme, or way of Husbandry, exercised therein ever since they were borne, which begets so much ill Husbandry in this Kingdom, never affecting Ingenuity in any particulars of their Husbandry, which is contrary to the mind and will of God in making us: And the end wherefore we were made, Good-husbandry commanded, and so experimented by God himselfe, and charged on us therein, and so commended by *Solomon* the wisest of men, with Ingenuity and Activity, to the putting out the utmost of our spirits, in subordination to our spirituall calling, in our particular callings to serve our generations, and improve our Principles for the common good, which two aforesaid causes if they be not removed, will never admit of the removall of the subsequent causes.

2. Cause is Improvidence and a slavish custome.

3. Cause is want of punishment of Idlenesse, and want of Stock to set the poore on worke.

A crying sin.

A third particular cause in man of the Earths unfruitfulnesse, is want of severe punishment of Idlenesse, the Mother, and Drunkennesse, the daughter, or the putting in execution of such good and wholesome Lawes, as both God and man have provided therein. As also not raising flocks in all Countries, as a Magazine or treasury of worke, and labour, for those that want it; And those other Lawes for punishing of Rogues, and Vagrants, that wander throughout the Kingdome, and compelling and constraining youth, and idle people, to some calling. All which would both put them on to more Industry, and the Gentry, and Yeomanry, of the Kingdome would be much induced to Invention, and Expatriating themselves in charge, and treasure, to maintaine them, whereby these horrid sinnes of Idlenesse, Lust, and Lawlesse-ness would be checked, and these Drones, and Catterpillars the bane of a Christian State, and shame of a Christian Nation, would not so swarme amongst us; It is a crying sin of our Kingdome, I pray God charge it not upon us, lest as wee have already smarted for it, wee smart not now at last to purpose. So that were but these Improvements put into Experiments, their great Plea would be silenced (*viz.*) *Will you set us on worke? wee will worke if you'll provide it &c.* (and out of all question) the capacities of the Kingdome herein, are farre more then here be labouring men to act them, and so as they conceive, they justify their Abomination, both by necessity and authority.

As for Drunkennesse the daughter, which so aboundeth in this Kingdome, that I verily believe,

and

and feare not to make it forth, by reason, and experience, that were it the daughter, with Idlenesse the Mother, suppressed in this Kingdome, wee need never to feare want or penury. I know diyers Townes in this Kingdome, where you shall have two, or three poote Ale-houses, wickedly, and wastefully, deuoure more Mault, then all the Freeholders, Laboturers, and Inhabitants besides. And judge you, Labouring Countrey people brew their owne beare also, neither is there any passage, or Roade-way through the Townes, where these private houses of resort are, and yet theseto vent so much Beare, or Ale, is wonderfull! How much then is consumed in great Passages, common Roades, great Townes, Markets, or Cities wastefully, and wickedly? if so much be in Corners remote, and not thought of? so that were there a suppression hereof, how would Idlenesse be abashed? men would scarce stand idle in open wayes, or passages for shame, wife and children enjoy their Fathers, and husbands at home, if doing little, yet not consuming that they have got already, and the Markets more full, and plentifull of corne so miserably wasted; And therefore as I highly commend these Lawes we have already, and prayse God for them, so I humbly pray a quickning of their execution, wherein our Worthies, had they not so heauie pressures upon their shoulders, as are ready to break their backs, I am sure they have broke the spirits already of diuers, whose losse wee have cause to lament with watery eyes they might humbly be implored for some Intewening, Quickning, Ordinances, with such

C :

strict

strict penalties annexed to the Execution of them; as the Discoverer or Projector might not only be rewarded, but commended and protected from disgrace and calumny.

A generall
causes of Bar-
rennesse.

The second generall cause of Barrennesse is in the Earth it selfe, and the principall causes of hir Barrennesse are very many, some are obvious to the Judgement, and understanding of all, as tilling Land till it beare no corne.

• Tilling.

And mowing Ground till it Graze no more, or yeeld no grasse; all which are easily to be remedied if men would learne moderation.

But my designe lyes not so much in Reproving, as Improving and discovering that there are many causes which lie more obscure, and are either not discerned at all, or else not adjudged any cause of Barrennesse, or hinderance of the Earth her fertility, And so not at all indeavoured to be removed; and they are in some Lands, extreame Coldnesse of nature, having a most springing water lying neare, or just under the surface or superficies of the Earth which doeth either eat away or devoure the Sap, Fruit, and Strength of the said Lands, or else breed and increase the Rush, and Flagg, which groweth in the roome of Grasse, and eateth away the same.

Rockidessel

Another cause is Rockinesse, Stoninesse and Gravellinesse, all which many times lie so neare the surface of the Land, that they devoure much of the Earth, and so make that litle left so weake, that it can scarce bring forth any fruit.

Mountainous.

Another cause is lying Mountainous, sometimes so neare the Sea, that the Vapors and Fogs, that come from

from thence, any the same. Also lying far from the Sun and in shady parts occasioneth Barrennesse.

Another cause of Barrennesse is the unsutable, unnaturall laying downe of Land to Graze, a cause scarce imagined so to be, or the present ill lying of Land, that hath layen long, and was ancient Inclosure, all which are infinitely more prejudiciall to the fertility thereof then can be imagined (*viz.*) for that Land that is sandy, warme, or gravelly, that to be laid on high Ridge or Furrow is directly contrary to the naturall fruitfulnessse of that Land; And that which is of a cold, moist, spewing or weeping nature, for that to be laid downe flat or leuell, is to the ruine and destruction of that also, and is an extreame on the other hand.

Improvidence
laying downe
all Lands.

How to lay
downe warme
Land.
How cold
Land.

The latter sort requireth high ridged Lands, and deepe open Furrowes, And the first sort the contrary, and especially all lands whatsoever to be laid downe in good heart and strength.

Also another cause is the standing of the winter water upon the land, or the raine of Heaven, I say not the running over lands, so that it may be laid dry at pleasure, but the standing, soaking water breeds the Rust and fowlenesse, and likewise gnawes out the heart and strength of it, like the worme at the Stomacke, and devoureth the strength of it, as experience will shew in many parts of the Kingdome, where great Balkes betwixt Lands, Hades, Meares, or Divisions, betwixt land, and Land are left, and one Furlong butting, or Hadlanding, upon other Furlongs, make such a stoppage of the free passage of the water, that a great part of that Land lieth as it

Standing wa-
ter in winter.

were drowned a great part of the yeare, that it comes not that backing many times till neare Midsummer, when other sound Lands have yeilded a full halfe yeares profit, and so for halfe a yeere yeelds little or no profit at all.

Mole-hills.

Another great prejudice is the Mole-hilles, and the Ant-hills although I shall nor directly argue hence Barrennes, yet I shal demonstrate the evill of both, for the Mole-hills that destroyes some part of the Land, by the severall casting up of much mould upon the Grasse, all which are hindrances to the increase of the owner. But for the Ant-hills if my opinion shal not exceedingly, they are grand enemies to the Grazier, and Husbandmans advantage, they destroy more then men observe, I do beleeve that in some great Pastures in *England*, there is one fourth part of the clear fruit of that Land, lost by the multiplication of them, for although some are of opinion that they are little or no prejudice, they are much mistaken, and they will clearly be convinced thereof, if they will but either seriously consider the quantity of grasse that groweth upon them, or else consider the rarenesse of Cattell feeding upon them, and then also consider the quantity of Ground, and good Ground, they cover, will easily appear the great prejudice by them.

Ob.

But thereto some may object, they make more ground.

Ans.

I Answer they doe, such as it is; destroy a lesser good quantity of Land, and adde possibly a double bad; but let them consider that this Addition is a great Substraction, for if you weigh what I said before, they beare

bear little, or no grasse, a little wilde time, and speary harsh grasse, that cattell eat not, but in case of hunger; And I am sure they cover a great deale of good Land. Do but really consider it upon experience, and thou shalt finde that one Acre plaine or bancked shall doe as much service, as an Acre and neare an halfe shall doe that is so hilly; And againe if you doe not flatter your selves, in your own judgements, you will finde that while the Land was plaine, if you consider the fruite it then yeelded, and the Cattell it then maintained, you will finde there is no proportion betweene what it then kept, and what it now maintains, for in my Experience I finde that old resty Land, much overrun with these hills, much degenerates and doth not, nor hath of late yeares kept the former usuall Stock it kept before it grew so hilly, and so old, by neere or about one fourth part, which I am sure is as much Advantage, or cleare profit to the Grazier, Breeder, or Tenant neede expect; and although some will not acknowledge there Experience herein, yet many I am sure they finde it by losing prooffe, besides the danger of casting their Cattell and Sheepe betwixt the Hills which oft destroyes them.

Another cause of Barrennesse is Bogginesse or Mirenesse, which turnes all Lands both Bad, Good and Better, into such a state of Barrennesse and unfruitfulness, that it in some parts almost destroyes the Land, and in other parts it wholly destroyes it, and in some places makes it worse then nothing; for instead of yeelding some fruit, it not only yeeldeth none but corrupts and prejudiceth other Lands on which
it

it borders, and it selfe most dangerous to mischief the Goods or Chattell that doe pasture upon the same, and so may be accidentally many degrees worse then nothing.

Constant resting
of the water
on that
Land.

Another cause of Barrennesse is the Overflowing and constant abiding or resting of the waters of the Sea, Rivers, standing Lakes or Pooles, for be it fresh or salt water, if it lye constantly upon it, it assuredly destroyeth it, although some more, some lesse, according to the deepnes, and barrennes of the water, which covers it, and the soundnesse of the ground on which it lyeth, so is the fruitfulnessse more or lesse perspicuous. Many other causes of offences might be spoke unto, but they are referred to a more proper Opportunity, wherein they may receive a more suitable capacity of removeall, and others also will be dropped into the discourse at large, as occasion may seasonably is administred. And so I proceed to the Recoveries of the said Barrennesse. But before I descend to the particulars, consider the severall sorts of Lands, that will admit of Improvement, *Which I consider under two Generall Heads.*

1 Head.

First all Inclosed, Severall Land, whether Meadow or Pasture.

2 Head.

Secondly, Common Lands, whether Arable or Grazing. First Severall inclosed Lands I divide into three sorts, or else will ranke them under three Heads.

1 First shall be our worst sort of Lands, of what nature soever they be, from the value of one shilling per Acre, to ten shillings, The Improvement whereof will fall under most of the six particular pieces, it being

being capable of most and greatest *Improvement*.

2 Secondly, is our middle sorts of Lands, from the value of Ten shillings *per Acre*, unto Twenty which falls naturally under the third Piece or way of Improvement, yet is capable oft times to fall under some or most of the other Pieces also.

3 Third shall be our richest Land, from Twenty shillings *per Acre*, to Forty, and from Forty to three or foure Pounds an Acre, some whereof of this sort, will admit of very little or no Improvement, having all naturall, and Artificicall Experiments already made upon it, but some others of this richer sort will admit of a very considerable Improvement, and is principally discovered under the sixth Piece; neither can I say that all Lands without exception of the two former sorts may be Improved: for possibly and out of question very much is Improved already, and others may lye so voyde of any capacity of Improvement, that either there may be none at all, or else none that will raise such Improvements, as will well and sufficiently requite the charge, and cost bestowed.

And my designe is principally to holde onely forth possibilities of Improving at a farre inferiour charge to the cost bestowed, and the Improvement made from such materialls, as generally are lost, or little or no whit practised in most parts of the Kingdome.

Only improve
uppon great
advantage

The second Generall are our common Lands, whether errable, constantly under Tillage, such as are our common fields, all the fieldon or field Land throughout the Kingdome, of which there may be

D

three

three sorts also, Bad, Better, Best of all, and all and every part thereof may be very much & manifoldly advanced, under some or all of the aforesaid Pieces; or else whether it be Commons or Communes of Pastures upon those great and vast Commons, called Heaths, Forrests, Moores, Marthes, Meades, or whatsoever of them, Those also may admit of a very great Advancement, and these Lands will fall familiarly under every Piece, according to their severall values, and capacities, but most especially under the third and fourth Piece, treating of Tillage, and Inclosure. And then I shall proceed to shew you the nature of each sort of Lands whereby the Remedies will be most facile and easy in the application.

The second Generall holds forth the severall meanes of Cure : Or the reducement of Land unto Fruitfulnesse and Fertility, discovered under the first Piece of Improvement of floating or watering Lands.

CHAP. III.

*shewes the first Cure or Remedy against Barrennesse,
and therein discourseth what Lands are most sute-
able to watering : And how to gaine wa-
ter upon the same.*

BUt before I discourse the same at large, I shall
only say that there are severall remedies a-
gainst the said Barrennes, or divers meanes
of reducing these Lands to their naturall
fruitfulnesse, or to the Improvement of them, to a
more Supernaturall Advance then they were ever
knowne to be.

To which I must premonish the Reader, that here
lyeth all the Skill and Kernell, which being made
forth according to the first proposition Generall in
some good measure, I hope will give thee such satis-
faction, that thou wilt not only vouchsafe me the
reading and thy credit thereto, but also be a practi-
tioner therein ; Which done with delight, will not
only produce the reall advantage here discovered,
but far greater : for these things are, and may be
brought to a greater height of Advancement, by how
much the more Ingenuity and Activity is exercised in
the Prosecution and Experimenting of them, and to
a greater discovery by a constant and familiar use of
them, which is the true and reall end of his Discove-
ry ; and the Proverb herein will hold ; *The more the
the Merrier.*

The Cure followes now more largely.

D 2

All

ALl sorts of Lands, of what nature or quality soever they be, under what Climate soever, of what constitution or condition soever, of what face or character soever they be (unlesse it be such as naturally participats of that fatnesse, which Artificially it may be raised unto) will admit of a very large Improvement.

Under great
Rivers will be
the best Land.

And under
lesser the greater
qualities
and greatest
Improvement.

And such are the Lands, that lye neare unto, or bordering upon any River, or small Brookes, your little Rivers, and Rivolets, admitting of greater falls and descents then your bigger Rivers doe, which run more dull and slow, more dead & levell, whereby little Opportunity will be gained of bringing but little Land to so great advance by them, but where the greater Rivers can be gained over any Lands, there will the Improvement be the greatest, and the Lands made the richest, the greater Rivers being usually the fruitfulest, having more Land floods fall into them; But under your lesser Brooks may your greatest quantities of Land be gained, and your water most easily and with small charge be brought over greater parcells then upon greater Rivers.

I For the discovering of such Lands that lye under this Capacity, you must seriously consider the Situation of your Lands, If your Lands be more hilly and your Brooks run more swiftly, more Lands may be brought under them; Also if your Lands lye more shelving or descending towards the River, that your water may fall off as fast as it commeth on, the quicker and easier will your Land be Improved, especially if your Land be sound, light or gravelly; This is a most gallant opportunity, if you have
either

either a constant Streame, or Land flood.

And here let mee (good Reader) advertise thee of one Piece of husbandry, most highly commended of most men; And truly so it is very commendable, and excellent, compar'd either with those that use none; or else neglect this where it may be done, which is this.

Many Gentlemen have assayed to water their Lands, by setting the Water in Pooles, Ponds, or Lakes upon them, and continuing it standing, and soaking many dayes and weekes together; and then draw their Sluces, or remove their stoppages, and draine away all their water againe, to which way of flowing, I incourage all men rather then neglect all, and honour them therein, yet if they please to make Experiment of the succeeding way of floating, they will easily let this fall; The excellency whereof consists in the speedy taking away the water, as soone as it is brought on; And onely suffer it to run over, and so with all speed runne off into some drayning Trench againe: The Method whereof shall at large be handled, by which, such a concealed Advantage will be discovered, that men will wonder how they were deceived.

Setting water on Pooles or Lakes not so excellent.

My advise shall be, never cover thy Land with a standing Water, unlesse for a day or two, or else in case thy Land should bee so Levell that it hath no descent at all, then better set the Water upon it, then neglect it, so thou bee sure to drayne it after one or two dayes standing, yet it is impossible ever to produce the like effect, as it shall according to the subsequent directions; Because it neither

In what Cases to cover Land by Water.

receives the full fruit, or farnesse of the water so fully and kindly, nor is grazable and feedable so soone, nor yet so richly, as in the other kind of working.

2. After thou hast considered the Situation of thy Lands, as aforesaid, then search, and finde out the lowest part of thy Lands, and there having found such a Levell or descent, as will lay all thy Lands dry againe, as thou shalt have occasion to floate them, which drayne must be wrought so deep, as that thou mayst goe under that corrupt feeding, or springie moysture, that breeds, and feeds the Rush, Flag, and Mareblabb, or else causes thy Land to turne Spewing, Morish, or boggy, which two Advantages, if thou hadst discovered, and found upon thy Land, (which little Land in *England*, but hath one or both of them) and so come to the third Direction, and,

Land sad and
moyst worst
to Improve
by watering.

3. Then consider seriously the nature of thy Land, which if it be cold, and of a sad Nature, moyst and spewing, It will require then a very good Land-flood, or a constant River to overflow it, and other barren hungry Water will doe very little good thereof.

Land sound
dry & warme
the best.

But, if either thy Land be Gravell, or of a sound, warme, Sandie, or mixed nature, and any whit Descending, then any Running Streame will have a gallant Operation; The warmer, lighter, and sounder is the Land, the greater is the Advantage. These particulars discovered, out of question thou hast a wonderfull Advantage before thee, especially if thou hast any great Length and quantity of Land along the River, or by a great Roade-way side, or else


halt any good Land-floods from great Townes or Cities, make as much of these Advantages, and prize them as thy Lands, for though hereby thou canst make thy Lands no more, yet thou mayst make them so much better, almost as thou canst desire.

Suppose some man of great credit should say, Sir you have two hundred Acres in such a place, what if I should lay you a hundred more in the middelt of them? he would wonder at it, yet because of the credit of him that spake it, he doth not wholly disclaime it, and if it could be done he deserved thanks for it, but he doth doe it really though not in kind, that advanceth or Improves the Land but one third part, that makes Two Acres as good as Three, much more he that makes One as good as Three, or Five, or Ten, as before this watering businesse be done shall clearly appeare; and so I descend to the working out the same. I had forgot another sort of Land, which is your Boggy, Quaginary Land, no lesse capable of a mighty Improvement, if it fall under the opportunity of floating.

Boggy Lands
good for wa-
tering.

CHAP. IV.

shewes how to worke thy Land, and water, so as to reduce it, and worke out the Improvement promised.

Nd so doe but a little consider of the way of both, sitting thy Land to thy Water, and thy Water to thy Land, with the truest, naturallest, and properest Seasons, for bringing it on, and taking it off, and thou shalt see an admired issue. And

And being resolved to make this Improvement, Plot out thy Land, into such a Modell or Platforme as thou mayst be sure that all thy Land thou designest to this Improvement, may not faile therein, I meane that all thy Lands thou resolvest to floate may be under the true Levell of thy Water; And that this may be I shall here discover to thee how to carry thy Water upon the Levell, that thou shalt lose no ground, neither carry it so dead, that thou canst not kindly worke it, and this precisely observed may be in stead of many Persians Wheelles, so highly commended by Mr. *Gabriel Plats*, which wheele is also commendable and may be very usefull, where either no good falls can be gained, nor other waies the water cannot be raised to higher parts of ground you desire to water; The description of which Persian Wheel I hope to give thee before this discourse be ended.

And now for the Method or way of working thy water upon thy Land without this Wheele, which will require a double streame, one to drive it, and another to be raised, and without the charge of all other appurtenances to the said Wheele belonging, Dams, Sluces, &c, and the maintenance of the same for preservation of this charge, and for the more easie working the Improvement.

Take a most exact Survey of thy Water, not by thy Eye onely, but by, and with a most true exact Water Levell, which is an instrument but rarely made nor used among us, which shall be largely described among other Tooles in the ninth Chapter.

How to begin
the first peece
of watering

And either begin at the over end, or neither end of thy Land, which thou pleasest, if at the over end, where

where the water first entreth into thy Land. And by thy Levell discover and plot out where thy water will goe all along thy Land, as thou goest downward, that so thou mayest lose no Land, that will easily be brought under thy water; Then cut of thy master Trench or Water-course if thou pleasest to such a bignesse as may containe all thy Land-flood, especially to bring it within thy Land, and so bring downe thy whole Water-course together: But the most certainest way is, as soone as thou hast brought thy water within thy Land, upon the Superficies of it, then carry it along in a foot broad Trench or lesser all along thy Levell, which water will be a great helpe, and a second and truer Levell then the other, and in thy working of it thou shalt find all little enough to prevent too dead a Levell, and yet lose no Ground neither: If thy Levell be too dead, the lesser streame will follow thee, so that a convenient discent must be minded also to give the water a faire and plausible passage or currant all a long. And if thou discover in this lesser Trench, any mistake or failing, then thou mayest with more ease and lesse charge amend the same easily and stop up the same againe (for thy Trench need be no deeper then the thickenesse of thy over Turffe) and cut out a new, and so thou mayest most certainly demonstrate where thy maine worke shall goe without hazzard.

This done thou mayest cut out thy water course and be sure it be large enough to containe the whole Water, and so thou have longitude or length of Ground, the Trench must be the broder not the deeper, for a shallow Trench is best for this worke.

E

And

And when thou hast brought it so far into thy Land, as thou hast any Land to worke upon, thou mayest a little narrow thy Course, as thou seest the quantity of thy Land, or Water requires, and so farre as thou wouldest have thy Course float over all at once; thou must cut thy Trench narrower and narrower all along to the neather end, that so without stops and staies it may flow all along at once, the Trench being natrower and narrower; that Water that comes within the Trench where it is wider must needes thrust out that, which the narrower cannot containe; For here is the true excellency of this sort of Trenches, and thus should all thy floating Trenches be made.

How to make
the drayning
Trench.

As soone as thou hast brought thy water upon thy Land, and turned it over, or npon it, then as afore-said, be sure thou take it off as speedy as possibly, and so faile not to cut out thy worke, so as unlesse thy Land be very found, and thy Land floud Rich, thou must take it of the sooner by a deepe drayning Trench, no further from this then the water and Land will beare it; therefore I prescribe the no certaine breadth betwixt floating and drayning Trenches, but if thy Land is sounder and dryer, or lieth more descending thou mayest let it run the broader, and as the Land is Moyst, Sad, Rushey and Levell, let it run the lesse breadth or compasse, and be sure thou make thy drayning Trench so deepe, that it goe to the bottome of the could spewing moyst water, that feeds the Flagg and Rush; for the widenesse of it, Use thy owne liberty, but be sure to make it so wide as thou mayest goe to the bottome of it, which must be so

low as any moysture lyeth, which moysture usually lyeth under the over-swarth and second swarth of the Earth, in some Gravell or Sand, or else, where some great Stones are mixt with Clay, under which thou must goe halfe one Spades graft deepe at least: yea suppose this corruption that feeds and nourisheth the Rush or Flagg should lie a yard or foure foot deepe to the bottome of it thou must goe, if ever thou wilt drayne it to purpose, or make the utmost advantage of either floating or drayning, without which thy water cannot have its kindly Operation for though the water fatten naturally, yet still this Couldnesse and Moysture lies gnaving within, and not being taken cleane away, it eates out what the water fattens. And this also I must desire thee seriously to observe that as soone as thy Water hath spent it selfe, and the Earth or Grasse hath exhausted and drawne out of the Water her strength and richnesse, then how long soever it runs longer and further it prejudiceth and corrupts it by breeding the Rushes in abundance: For this seriously observe, That the water running trickling among the Grasse, and upon the Earth, leaving her Thieknesse, Soyle or Filth, which I call Richnesse, among the Grasse, and upon the Earth, and it selfe runneth away into the drayning Trench, and troubles thee no more, and so the Goodnesse of the water is as it were Ridled, Screened, and Strained out into the Land, and the Leannesse Slideth away from thee, which can never be done, neither so speedily, nor so purely by standing on Lakes or Pooles, besides the losse of the Grazing, which may be as good in Winter as in Sum-

Shews how
the water is so
fruitfull.

Englands Improvement : or,
mer, upon a good Land-flood or rich Waters.

CHAP. V.

Shewes the cause of watering, its fruitfulness, and the proper season, of watering Lands.



Rich Land-flood is ever the washing down of great Road wayes, Common Feilds, under Tillage, or else from great Townes, Houses or Dunghils ; The riches whereof is unvaluable ; Consider the goodnesse of thy water, if thy water be a rich Land-flood, or a lusty gallant Streame, it will run further with life and fruitfulness ; If leane, thine, and onely from p rings and Hearbs, or greene Soard, tis more Barren, and so will operate upon lesse Lands, so that as I said before, thou must well observe both Land and Waters suitableness, and so increase the latitude or breadth of thy Land thou intendest to improve, with that streame, before it fall into his Drain ; Which Drain thou must digg, or make straight downe as it were by a Perpendicular plumb-Line, which will draine the best of all, or else thou mayst make thy Draine, or Trench, some what Taper (*viz*) Narrower, and Narrower downe-wards, which will keepe open the best, and continue longest, and for the Widenesse of it, that must be resolved both from the nature of the ground, which if Sound, and Dry, will require the lesse, but if Moyst and Boggy, the Greater and Deeper ; Or else from the quantity of water it is to receive, that so it may carry it all away plaussibly within it selfe, and for the dray-

How to make
the Drayning
Trench.

ning

ning Trench be sure, thou indeavour to carry it as neare upon a straight Line as is possible, the Reasons shall afterward appeare: This worke is of more advantage, and more to thy profit then thou imaginest, but thy exercise therein will teach thee more.

Thou must also well consider the proper seasons of the yeare, bringing on thy water, which is in the beginning of Winter, when Grasse groweth least, and beginnes to faile, and is cleane eaten off thy Land all Winter long, is very seasonable for this worke; And the best season to take it off, is in or about the beginning of *March*, thou maist make what Improvement almost thou desirest, especially upon thy moyst, cold, Land, if thou observe the directions given.

The floating season.

Upon moyst Land.

But for thy warme sound Land thou mayst continue thy water, and keepe it working upon thy Land, almost all the yeare round, Provided that thou keepe it not too long upon a place, for thou must be sure to have an especiall eye, that thou scake not thy Land too much, that Cattell treading, or Grazing upon it, soyle it not, for then the Rush will come upon thee, and it will over grow thee, and exceedingly prejudice thy hopes, (mistake me not) I speake not here to advice thee to continue thy water thus long upon one place, but be ever removing it from place to place, but especially to shew the proper seasons to make use of this Piece of Improvement.

Upon warme Land.

Thou hast also another great advantage hereby having water drawne over thy Land, thou art in such a Capacity that in case of droughr in time of Summer, thou needest nor to feare it, thou mayst now and then wet over thy Land in the heat thereof,

A double Advantage of
having a water
course carry
out.

President of
our yeare cutting
but five or
six and the
next twenty
saure.

President of
sandy Land.

My Plots
Presidents.

when Grasse if it have but Moysture, will grow far faster in so hot a time then any, but be sure not to soake thy ground too much ; Keepe thy Land rather in a thirsting condition, not glutted ready to spew it up again, so mayst thou preserve thy Land Greene, and fruitfull, when others are Scorched all away, Then may a weekes Grasse or a Load of Hay possibly be worth, Three, or Foure.

I my selfe by these opportunitities, have cut twenty foure Loades in a Meadow, where I cut but five or six the yeare before, when Hay sold at a great value ; The directions exactly followed, I will lose my Credit if thou faile of the effect promised.

And for thy encouragement I will give thee a president or two : Certaine Acres of light, sandy Land, were taken for a Terme of one, and twenty yeares, at the value of one shilling six pence per Acre, and that was more then it was worth, a little Brook with a Land-flood, issuing out of a Common Feild, was brought over it, the Land levelled and made fit, and even to receive it, for it was very Irregular and of great high Ridges and Furrows before (after the manner of that Country) and after two yeares working, thirty shillings an Acre would have beene given for it, for I my selfe offered it, and some of that Land also was my owne, but it was refused being wrought just by the aforesaid Directions. I have made the like Improvement my self upon Lands of the same nature, to as great Advancement as is here spoken of, too tedious to discourse. Mr. Plat, also in his Booke, produceth a president of Lands, Improved by water, with the charge of three hundred

Reduement of Land to prestine Fertillity.

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dred shillings; to be worth three hundred pounds *per* ~~annum~~, but what it was worth before, he saith not, but no question, a very great Improvement, I believe it was.

As for Boggy Land also, I have recovered several Pieces next to plaine Quagmires: The meanes of reducing whercof shall be discoursed by themselves in the next Chapter: So bad and boggy it was that Cattell could not Graze upon it out of danger; And indeed it bore nothing but Cattayles; And by this course I recovered it to perfect soundnesse, and made it worth betwixt Thirty and Forty shillings *per* Acre, and so dare undertake the like where ever, lying under the aforesaid Capacities; Many more presidents of this nature, are visible in many parts of this Kingdome, Some as great Improvements as these, Some lesse, and yet very great; And all done without any other Cost or Expence of charge, in any other materialls then Poore mens labours: Which to me is a second Argument of Incouragement, to promote all workes of this nature under these Capacities. One thing more I pray thee observe, that though it be the common practise of most men, to make many shallow Trenches of about one foot deep, and lay their Mould on heaps, that so they may spoyle but little ground, both which I must necessarily reprove as ill Husbandry: For though I am all for Floating, and Drayning, which will necessarily occasion many Trenches, yet I am an Enemy to this ordinary and usuall way of Trenching; first for so many Trenches, I conceive no need in these workes, nor upon any Land whatsoever, but

President of
Boggy Lands.

Too much
Trenching is
madnesse.

but something more of them, more seasonably in the second Piece of Improvement.

CHAP. VI.

Sheweth the true Artificiall making of the Floating Trench, and how to levell Land, and the suddainest way to Soarde it.



There are
two sorts of
Trenches.

Manner of
making the
floating
Trench.

Usually I shall advise, to make not above Two, or Three materiall Trenches, having first taken up thy Turfe, just under the Grasse rootes, both thin and square, and as broad as can be taken up, which I exceedingly prize for many uses, and preserve. The one I call a Flowing, or Floating Trench; wherein I carry my water: which usually after I have brought my water where I intend to worke it; I carry it in a Trench seldome above one foot deepe, and many times not above eight, or six Inches deep: that so it being made Artificially, (*viz.*) So levell and taper, and Narrower, and Narrower, as aforesaid, the further it goes that it may so cast out the water, that it may flow over the same for a furlongs length all at once, which is the Excellency of it; And then another drayning Trench running paralell with this or Two if the Land lye very flat: And a great quantity in Latitude all along the worke, and of such a depth as it may not onely receive all the water that Floweth over the Land clearly, but that it may also drayne away the cold Moystare and Bogginess that offends the Lands, by breeding either Rush or Bogs, and of such a Latitude, or breadth, from my floating Trench,

Trench, as I thinke my water is of strenght to Improve, without Prejudicing of it, by breeding Rush, Flag, or filth, as aforesaid; And as I make not many Trenches, so I shall fill up all others that are not serviceable to these, and so have done many a one, that others have made to Drayne their Land withall, and with this One or Two Draynes cast out, in the lowest part of my Land, layed dry more Land then a hundred of these common Trenches would, for a thousand Trenches made above the Corruption that feeds the Bogginesse, or Rushes, never Draynes, or takes away the cause, that the effect cannot possibly cease. As for heaping the Earth, and moyling the ground, that I also conceive may be prevented, by maintayning one Horse and Cart, and sometimes a couple of Wheele Barrowes, or a double Wheele Barrow with two wheeles, made big enough for two men to wield, & into them I cast my Mould, as I dig or cut out my Trench, and so carry it away when I first dig it, either into some old Trench, or hollow place, and there lay it, and then take my Turfe, which I tooke up in all my other Trenches, and cover over that Earth, and there will be as good Soard that yeare, if it be laid before February enter, as in many parts of the Field beside. And so shall save both the labour of removing my heapes afterward, and the spoyling of so much Land as they would cover. And for the better carrying on this Improvement by water, if thy Lands be either Hilly, or Banky, or lye high Ridge, or furrowes, upon which thy water will never worke kindly, take a Direction or two for the more easie Levelling of

A shallow Trench doth a certaiue hurt and unneccessary good.

How to prevent heaping Earth, and in evening the ground.

the same (how to leuell or playne Lands for watering most easily, and Artificially) which thou mayst doe either of these two wayes, Either of which I cannot more especially commend unto thee, thine owne Experience will demonstratethat,

How to Le-
uell Land

The first is Levelling by the Plough, which thou mayst doe by two or three plowings, and gaine a Crop also if thou rather affect it, herein thou wert best to begin about the latter end of *September* first to plow thy Land, which I advise to cast, as most men doe a Fallow, and then in *December*, be sure to give it a second plowing, just overthwart all the Lands, and so cut the Turfe, that the Soard may have all the Winters frost to wroxe, and moulder it, which towards *March* thou mayst plow againe, and so cast it, or raise it, as thy Land requireth, to bring it most even, and leuell, and if one more Plowing will not doe it, then thou must doe more, and harrow it also, to draw downe high places and fill up Valleys, and if it yet be too Irregular, and some places so high, that the Plow and Harrow will not bring them downe, thou must get some Labourers, with their spades, and take downe those places, and cast them into Regularity; A Labourer with a Spade upon this wrought Land, will doe abundance in a day; but be most Exact, and curious, in Levelling thy Land, it brings more Advantages then thou art aware of, or I have time to shew; And then about the middle of *Aprill*, sow thy Lands with such seeds as are most futable to the nature, and richnesse of it, but sow it not too thick by any meanes, nor too thin neither, but the thinner is thy Come, the stronger

Plowing to
Levell.

Spade to help
Levelling.

stronger will it be, and the more Grasse will grow among, which will help thee more in the Soarding of it, then hinder thee in the Crop of it, which Crop may pay a considerable summe towards this Charges; But if thou desire a more speedy Soarding of it, and hast no respect to the present profit, nor charge, in respect of a suddaine dispatch of it, then as before, so soone as Grasse begins to stand at a stay, and growes but a little, plow thy Land a thin broad furrow, exceeding Exact, and true, and as soone as thou hast plowed it, cut it all at such length, as thy Turfe may hold taking up, and heap thy Turfe upon the next Land, and then plow thy Land againe and cast it downe, and if it lye exceeding high, cast it Twice, and then two men with their Spades will leuell any uneven Hill or Ridge most easily, and thou mayst either with the Plow or Spade, or both, immediately bring it flat, and then take this Turfe, by all meanes before the grasse be killed, or deaded, and lay it down as thou ploughedst it up, every Joynt meeting and closing as even as thou canst possibly, and expect how much soever thou canst make plaine, and Levell before *February*, thou mayst reape great Fruit, or a good Crop of Grasse that Summer, especially if thou hast Water to Floate it with all, and when thou hast done One Land, then thou mayst remove thy Furrowes, or Turfe, to that thou hast levelled, And worke that Land accordingly as the other, and then turfe it also, and so goe forward throughout thy Field one after another.

The speediest
Soarding of
Land.

Some others have Levelled all by the Spade, and
F 2 by

Levelling
Land by the
Spade.

A presider
what one man
hath done at
Turffing and
levelling Land

by that meanes they have more certainly mixed their hungry Land, and fat Land more equally, and layed it down all a like hereby, which course also I very well approve, and if a man have very good Tooles, and Irons made on purpose, one to cut out his Turfe, and another to take it up square, and even, as big as it will possibly hold to take up, or a man can easily raise with his naturall strength, which Tooles are hereafter to be discoursed in the ninth Chapter, he may very neare dispatch as much, as otherwise is directed, especially if the Land be very uneven, I have had a man hath taken up Turfe all day long neare two foot square, if not above, and heaped the same, and three other men have followed and levelled, and he hath also layde and planted downe the same, as fast as they could levell it: you cannot possibly beleieve how fast worke will goe forward, with true Artifici- all Tooles, made exact to every purpose, and how much delight men will have to worke with them.

And having brought your Land thus level, then your water will worke most gallantly, and even, Floating every place Proportionably, which you must take especiall care of, and not suffer it to run a whole Streame over some, and scarce discernable over other parts, but be sure every where a like, and when you have your water over your Land, that it run over it with a constant thin Streame, it will improve fast enough, for soaking water breeds the filth, which you must avoyd as the most Pestilent Enemy to this Husbandry.

The second Piece of Improvement, which is the Drayning, or Reducing of Boggy Lands, to sound Pasture, is further discoursed in the Chapters following.

THe seventh Chapter followeth, wherein is to be handled Drayning, or taking away Superfluous and Uenomous water, which lyeth in the Earth, and much occasioneth Bogginesse, Myrinesse, Rushes, Flags, and other filth, and is indeed the chiefe cause of Barrenesse, in any Land of this nature; Some thing I haue already spoken as to Bogginesse, that lyeth under a Capacity to be floated with water, either River or Land-floods, In the Reduement whereof, you must precisely apply your selfe to all parts of the former Chapter, for bringing your water upon your Land, and working it also, and taking it off againe, especially that your Drayning Trench, or Trenches (for possibly in this sort of Land more may be required, according to the nature of the lying of your Land, if Uneven, and full of Dales, and Vallies) be made one Spades graft or pitch below the matter of the Boggs, I meane the Spring, for so it is, which must be clearely Drayned, which I cannot too oft reminde you of; But now I onely speake to those Lands which are from under such a Capacity, as those that are covered with constant Water, and Lakes, or else the Boggy, Miry, Lands, it self, and have no River, or Land-flood to be brought over them, and the remedies being equally Applicatory to
 F 3 both

both for the most part, I will propose generall remedies. I say that Drayning is an excellent, and chiefest meanes for their Reducement; and for the depth of such Draynes, I cannot possibly bound, because I have not time, and opportunity, to take in all circumstances, therefore in generall thus.

How to make
thy Drayne to
drayne a Bog
to purpose.

Be sure thy Draynes be such, and so deep as thou hast a descent in the end thereof to take away all thy water from thy Drayne, or else it is to no use at all; for suppose thou make thy Drayne as high as an house, and canst not take thy water from it, thy worke is lost; for looke how low soever is the lowest levell in thy Drayne, thou mayst drayne thy water so low, and not one haire breadth lower will it drayne thy ground then thou hast a fall or descent to take it cleanly from thy Drayne; therefore be especially carefull herein, and then if thou canst get a low descent from thence, carry thy Drayne upon thy Levell untill thou art assuredly got under that moysture, mirinelle, or water, that either offends thy Bogg, or covers thy Land; and goe one Spades graft deeper by all meanes, or thereabouts, and then thou needest not rye thy selfe precisely to a dead Levell, but as thy ground riseth, or as the moysture lyeth higher, so must thou rise also, so that thou keep one Spades graft as aforesaid under it; and that thou must not faile herein, observe that in Cold Rushey Land this moysture or cold hungry water is found, beneath the first and second swarth of thy Lands; and then oftentimes thou comest immediately unto a little Gravill, or Stoninelle, in which this water is, and some-

Where water
lyeth in
Rushey Land,

sometimes below these in an hungry Land, and many times this Gravill, or Stoniness lyeth lower as aforesaid; but in Boggy Land it usually lyeth deeper then in Rushy, but to the bottome where the spewing Spring lyeth thou must goe, and one Spade depth or graft beneath how deepe soever it be, if thou wilt drayne thy Land to purpose. I am forced to use Repetitions of some things, because of the futableness of the things, to which they are applyed; as also because of the slownesse of peoples Apprehensions of them, as appears by the non-practise of them.

And for the matter or Bogg-maker that is most easily discovered, for sometimes it lyeth within two foot of the top of the ground, and sometimes and very usuall within three or foure foot, yet also some lye farre deeper, six, eight, or nine foot, and all these are feazible to be wrought, and the Bogg to be discovered, but untill thou come past the black Earth, or Turfe, which usually is two or three foot thick, unto another sort of Earth, and some times to old Wood, and Trees, I meane the proportion and forme thereof, but the nature is turned as soft, and ten der as the Earth it selfe, which have layen there no man knows how long, and then to a white Earth many times, like Lime as the Tanner, and white Tawer, takes out of their Lime-pits, and then to a Gravell, or Sand, where the water lyeth, and then one Spades depth clearly under this which is indeed nothing else but a spring that would faine burst forth at some certaine place, which if it did clearly breake out, and run quick and lively as other

How the water that feeds the Bog, where that lyeth.

Every Bogg hath most certainly a living Spring within it.

other Springs doe, thy Bogg would dye, but being held downe by the power and waight of the Earth, that opposeth the Spring which boyles and workes up into the Earth, and as it were blowes it up, and filleth the Earth with Winde as I may call it, and makes it swell and rise like a Pusball, as seldome or never you shall finde any Bogg, but it lyeth higher and rising from the adjacent Land to it, so that I beleeeve could you possibly light of the very place where the Spring naturally lyeth, you need but open that very place to your Quick-spring, and give it a cleare vent, and certainly your Bogg would decay, by reason whereof it hath so corrupted and swolne the Earth, as a Dropsie doth the Body; for if you observe the Mould it is very light, and hollow, and three foot square thereof is not above the weight of one sollid foot of naturall Earth, Clay, or Land, whereby I conceive that how much soever this Mould is forced from the naturall weight, or hardnesse of sollid Earth, or Clay, so much it is corrupted, swolne, or increased, and blowne up, and so much it must be taken downe, or let forth, before ever it be reduced; I therefore prescribe this direction, (viz.)

Shewing how every Drayne must be carried up from a lower levell, then is the bottome of the chiefe Draynes

Goeto the bottome of the Bog, and there make a Trench in the sound ground, or else in some old Ditch, so low as thou verily conceivest thy self assuredly under the Levell of the Spring or spewing water, and then carry up thy Trench into thy Bogg straight through the middle of it, one foot under that Spring, or spewing water upon thy Levell, unless it rise higher, as many times the water or Spring riseth

As the Land riseth, and some times lyeth very low unto the very head of thy Bogg, unto which thou must carry thy Drayne, or within two or three yards of the very head of it, and then strike another Trench overthwart the very head both waies, from that middle Trench, as far as thy Bogg goeth, all along to the very end of it, still continuing one foot at least under the same, and possibly this may worke a strange change in thy ground of it selfe, without any more Trenching.

But for these Common and many Trenches, oft times crooked too, that men usually make in their Boggy grounds, some one Foot, some Two, never having respect to the cause or matter that maketh the Bogg to take that way, I say away with them as a great piece of Folly, lost labour and spoyle; which I desire as well to preserve the Reader from, as to put him upon any profitable Experiment: for truly they doe far more hurt then good, destroy with their Trench and Earth cast out, halfe their Land, danger their Cattell, and when the Trench is old, it stoppeth more, then it taketh away, and when it is new as to the destroying the Bogg it doeth just nothing, only takes away a little water, which falls from the heavens and weakens the Bogg nothing at all, and in the end it pretends is of no use, for the cause thereof lyeth beneath, and under the bottome of all their workes, and so remains as fruitfull to the Bogg as before.

Or thus thou mayst worke it some what a more certaine way, but more chargeable, (*viz.*) after thou hast brought a Trench to the bottome of the

Shallow
Trench repre-
sented.

The most sure
way to destroy
a Bogg.

Bogg, then cut a good Substantiall Trench round about thy Bogg, or two or three yards within thy Boggy round, for so far I doe verily beleewe, it will Drayne that which thou leavest without thy Trench of the depth aforesaid, that is underneath the spring water round; And when thou hast so done, make one work or two just overthwart it, upwards and downwards, all under the matter of the Bogg as is aforesaid, and in one yeares patience through Gods blessing, expect thy desired Issue; and if it be in such a place as will occasion great danger to thy Cattell, then having wrought thy Workes, and Draynes aforesaid, all upon strait Lines, by all meanes, prevent as many Angles, Crooks, and Turnings as is possible, for those will but occasion stoppages of the water, and filling up of Trenches, and losse of ground, and much more trouble, then otherwise. Then thou must take good Greene Faggots, Willow, Alder, Elme, or Thorne, and lay in the bottome of thy workes, and then take thy Turfe thou tookest up in the top of thy Trench, and Plant upon them with the Greene Soard downe-wards, and then fill up thy workes levell againe, untill thou come to the bottome of thy Bogg, where thy Trench is so shallow, that it will not indanger thy Cattell, or rather take great Pibbles stones or Flint stones, and so fill up the bottome of thy Trench about fifteen Inches high, and take thy Turfe and plant it as aforesaid, being cut very fit for the Trench, as it may joyne close, as it is layed downe, and then having covered it all over with Earth, and made it even as thy other ground, waite and expect a wonderfull effect through the

The prejudice by crooks and angles in water course.

How to make Draynes without any prejudice to any shepe, or beast

The best way of preventing danger to Cattell in Drayning

blessing

bleſſing of God ; but if thou mayſt without eminent danger leave thy workes open, that is moſt Certaine of all, I might make more particular Application of the premiſes to the drowned & covered parts of the Kingdome or Fenns, and Marſhes, and many other parts of *England*, upon which they will have ſuch an Operation, as to reduce them to perfect Paſture, and to great profit, and to all ſorts of ſuch natured Lands, thou mayſt apply them, and ſave me much labour, being the maine meanes of Fenne Drayning; As for Sluces, Flood-gates, Waires, and Dams, are but ſecundary, becauſe I intend as much brevity to make plaine my Diſcourſe as I can poſſibly uſe; But if thou canſt by any meanes make thy ſelf capable of bringing any conſtant Streame or poſſible Land-Flood & Water, and conſtantly Flow over the ſame, as in the former Chapter, that will reduce it to a greater Advance, and worke the moſt certain-eſt deſtruction to the Bog of all, as I have before declared by Experience; and therefore of Fenne draining or Bog deſtroying, I will ſay no more for preſent; here I intend onely an Abſtract of my thoughts, to kindle Affections to the Worke, and hereafter (if God pleaſe to give another Opportunity) I ſhall more largely Diſcourſe of further Experiences herein, as I have both ſcene and heard, and am now endeavouring more certaine Trials of them; yet a little more thereof will follow in the next Chapter.

Fennes and
Marſhes re-
covery.

Floeing beſt
deſtroys a Bog

As I conceive, the Bogs in many parts of the Kingdome were occaſioned thus : where ever is a Bog, I am confident was formerly a Spring, which Spring, running and venting it ſelfe, kept the Land round

The probable
occaſion or
hiſt cauſe of
Boggineſſe.

about it, sound, and dry, as where most clear Springs are it is this day, but the said Spring stopping up, either with leaves or Cattells treading, or wood filling upon the same, or other filth (for I beleeeve many, or most parts of the Kingdome, was very woody in former Ages) the Spring was stopped that it could not clearely vent, and so being a Living water, would not be suppressed, or buried, but swells and boyles up into Bogginess, and so vents it selfe by little and little in a greater Compasse of Land, because it cannot breake forth cleare together in a lesser, because of the pressure and weight of the Earth upon it, and this is the most naturall cause thereof that I can gather; And my Reason is this, In many Bogs (I will not say in all) I have found great Pieces, or Boughes, or Bodies of Trees lying in the bottom of the Bog foure or Five foot deep, in the full proportion of a Tree, or bough, as it fell in, but when you come to take it up, you may cut it with your Spade just as you doe your Earth, and it goes to Earth, but how this should come so low and ly so deep, and so familiarly in Lands of this nature, and not as frequently upon sound Lands, I cannot conceive otherwise then as aforesaid.

CHAP. VIII.

*Treaties of Fenney, Marsh Lands, and the meanes
of their Reduement.*

Here is also much Boggy and Miry Land that may be reduced to Advancement, and such capacity as some may lye under may be Improved Twenty fold or more. And as for course Marsh Lands upon both Fresh and Salt waters, there hath been such gallant notable Atchievements, by many Accurate and Ingenious spirits, to whom the Kingdome oweth high Acknowledgements, and whose workes, and Experiments I must admire and Honour, To whom I desire to be a Pupill: Yet notwithstanding their Discoveries, and their Workes, cut forth throughout the Kingdome, and left to Idle Practitioners, and Sloathfull Impatient Slubberers, who have not only done it by the halves, but stifeled many a gallant plot: Opportunity of a far greater Advance then it hath produced; And so possibly in many parts of the Kingdome there may be great Reparations of these Ruines, and a certaine Reduement to high Advantage; As also some Addition possibly to their Model, or some Increase to their beginnings, Which is acknowledged farre easier then the first Projection, to which if be applyed what before hath been briefly spoken in the latter end of the aforesaid Chapter, Expect some Advantage for the present, in the application of these briefe Directions, and

Marsh Lands.

The first
Fen Dray-
ners, or Le-
vellers highly
to be honour-
ed.

Invention far
harder then
an Addition
to it.

in thy waiting but a little, and Experimenting former Rules, mayst possibly meet with more Discoveries, untill thou hearest more hereof.

Cutting water
courses
strait no
small Advan-
tage.

The last way of Improvement of these sorts of Lands, prejudiced by water, is a way applyable to every other sort of Land whatever, which lye under that Opportunity, or Capacity, which is the cutting strait the water courses; of little Brookes, and Streames that runne many times, in a spirall line, and sometimes Circularly, as they would make the figure 8. and so lose as much more Excellent Land, as need be, nay in some places twice or thrice so much, besides these Angles, Triangles, and almost Squares, and Circles much Indangering Cattell by Goaring, rushing, and thrusting them in, and also makes such stoppages, and Oppositions to the water, that hinders the Current of it, and occasioneth it to lye Soaking on the Land, that it either breedeth Rush, Flagg, or Mareblab; Also the aforesaid Directions is a great meanes of laying sound much Land overcoine by Bogginessle, the water lying so upon it, that it Drowneth or stifeleth a great part of the fruitfulnessse of it, yea, suffocatedh and choaketh others also bordering upon it, no small Prejudice to the Kingdome in generall, and too many Townships and persons in particular. A strait Water course cut a considerable Depth in a thousand parts of this Kingdome, would be more advantageous then we are aware of, or I will taske my selfe here to dispute further. And though many persons are interessed therein, and some will agree, and others will oppose; one Creek lyeth on one side of the

the River, and another lyeth on the other side, and divers men own the same, why may not one Neighbour change with another when both are gainers? If not, why may they not be compelled for their owne good, and the Common-wealths advantage? I dare say thousands of Acres of very rich Land may hereby be gained, and possibly as many more much amended that are almost destroyed, but a Law is wanting herein for present, which I hope will be supplied if it may appeare Advancement to the Publique; for to Private interests, it is not possible to be the least prejudice when every man hath benefit, and each man may also have an equall benefit.

CH A P. IX.

The ninth Chapter giveth directions to make and use certaine Tooles, or Instruments, which shall much facilitate the Worke.



And for thy further encouragement, because Drayning and Trenching is found very chargeable, therefore in the third place

I will discover certaine Tooles or Instruments, which shall make the worke more facile and delightfull, with which two Workmen, (and indeed any Ingenious man may quickly attaine a handinesse, and dexterousnesse therein) that can well handle them; And shall doe more then many common Labourers doe in one day with their ordinary Tooles, and shall worke more true, and more suitable and commendable to the nature of this way of

Tooles belonging to floating and Trenching, to make the worke more easie and lesse chargeable.

Improve

Improvement; which Toolles are all very plaine, and simple, without severall motions, or divisions, made only for ease, lightnesse, and quicknesse, not for Admiration or Confusion.

A good Line.

The first is a good Line about thirty two yards long, made of the best water-wrought Hempe, and as bigge againe as Whipcord, upon a good Reelee to winde it upon; I prescribe this length because of drawing all Workes as neare unto a Strait Line as possible may be; which length is of use in measuring your Worke by the Peareh or Rod as you desire also, and no more of this.

A water-
Levell.

The second is a water Levell about five foot long, the longer the better, but that it will be the farre more unportable, but foure foot and an halfe will doe reasonable well; which Instrument many have allayed and made, some open with a Channell for the water to run all along upon a three-inched Piece of Oake, with sights placed at each end, true to the water, that is each sight of a just proportion from the water, to direct the Levell, but this lyeth so open to the Winde, and is troublesome removing, that it is not worth prescribing.

Others have used them of seven or eight foot long, to be placed on two or three leggs, as the Surveyor placeth the plaine Table, the Levell made with an hollow Concave, for the water to lye hid from the winde, and to come up in two Cups (above the wood) planted in the Levell, and sights planted very Artificially thereto, the water in each Cup holding his just proportion to both sights, and this is a very good one, but very troublesome to remove up
and

and downe, and to make dispatch when one hath need; And in this second forme were Sir Edward Petto his Levells made very costly, and the Sights of good value; but I rather chuse a plainer Piece which is very Portable, and it is made to fold into another square Staffe, and so to carry like an Hunting-Pole my Staffe is but five foot and an halfe long, made of the best young seasoned Oake that can be got; my Levell, or the Barrell of it is but foure foot and an halfe, or five foot long, which Barrell in the midst of it, is planted into the top of my Staffe thus; Just upon the midst of my Barrell is a paire of Iron joynts curiously wrought into the very midst of my Barrell, on the neather side of it, and at the very over-end of my Staffe, and so much of the one part of my Staffe, and just halfe the length of my Barrell, taken away with a moulding or rabatating plaine, untill both joyned together with these joynts make one compleat Staffe strait, and formable, only about a quarter of an Inch taper upwards, from the bottom e to the top, that it may not be too top-heavie, and the sights are to be fixed unto both ends of the Levell Barrell, that they stand firme and hold water, and yet are very little or no annoyance, either to sight or Practice; And in the portage of it, it is a faire strait Staffe, with a strong Pike in the bottome of the Staffe, and a step to set the foot, or force it into the ground where there is no occasion to use it; And in the Exercise of it, being unfolded it is an headlesse crosse, not much unlike the Surveyers crosse Staffe; which when thou hast done thy work thou maist fold it up againe, and walke as with an

Hunting-

Sir Edward
Petto his Le-
vell.

The manner
and forme of
the truest and
speediest Le-
vell.

Who are the
makers of it.

Hunting-Pole. Any good Gun-smith will make the Iron-worke, and some Gun-smiths will make the Wooden-worke also with direction; but properly it belongeth to the Joyner.

The Trench-
ing Plough.

The next is the Trenching-Plough, or Coulter, whose speciall use is to cut out the Trench on both sides with great expedition, which is thus made; Take a Peice of the best tough Willow, about the bignesse of a Spade-stayle, somewhat strait only at the neather end, it must looke upward with a neck like a foote which must run upon the ground, and just above the neck must be an Iron, or little Coulter about the strength of a Butchers Knife, planted in the stayle, where the stayle must be plated with Iron, curiously let into the Wood on both sides, through which, as also the Wood, the tange of the Coulter must come, with a Cotter-hole in it above, to cotter it close to the over-side of the Staffe, or rather have two Coulters, one about an Inch and halfe longer and stronger then the other, that so in soft deepe ground thou mayest use the longest, and in dry ground the shortest.

Whose use is, when that thou hast cast out thy Trench, & set thy Line, thou maist with this run along thy Line, and cut out one side of thy Trench, almost as fast as a man can follow it, and then set out thy other side, and cut it out also; but if thou studielt more exactnesse, then in the foote of thy Staffe, and in the middle of thy foot, plant a little Brazen Wheele about foure Inches high, that so the foote may beare it selfe a little upon the Wheele, which will occasion it to run more pleasantly; but the
Wheele

Wheele must also be curiously planted into the
foote with Plates, and upon an Iron Axeltree,
wherewith thou maist cut out a Pearce, whilst some
will be cutting out two yards, and more true and
certaine; and so also maist thou use it speedily to
cut out thy Turfe over-thwart thy Trench about
eighteene Inches, or twenty Inches broad, a fit pro-
portion to be taken up, or sometimes two foot
broad; for if thou wouldest take up all thy Turfe
as curiously cut square, and pared up about three or
four Inches thick all of one thicknesse, just at the
root of the Grasse as aforesaid, of which thou maist
make exceeding great use, which thou must pre-
serve most choyce, for therewith thou maist co-
ver thy bare places of Earth, or any low places that
thou wouldest raise up to a Levell, and maist have
as good Grasse upon it within halfe a year, better then
upon the other Lands; For the taking up of which Turving
Turfe thou must make a Spade on purpose, with a Spade
bit looking up twice so much as our ordinary Spades
doe, with a curious thin shooe looking up also;
whose bit must be exceeding well steeld, and more
broader at the point, or neather end of the bit, then
at the over end about halfe an Inch, and not above
by no meanes; which will take up the Turfe all at
one thicknesse, just at the naturall height a man
steeth in, as he stands to shovell Earth before him.
This Spade is admirable usefull, to cleanse the bot-
tome of Trenches, for which use it were very ne-
cessary to have another an Inch and halfe narrower
then the former, for lesser and narrower Trenches;
which Spades be (broadest sort of them) are more
speedy,

speedy, and more easie for banking and levelling high places, and great Ant-hills, by farre then other Common Spades are.

The Trench-
ing Spade.

The next Toole that is to be shadowed to thee is the Trenching Spade, which you may make betwixt Foure and Five Inches broad, and if you make Two which is better, One may be Foure Inches, and the other may be Six Inches wide, whose Tree must be made more compasse, and looking up, by farre, then your usuall Spades are, yea somewhat more compasse then your turveing Spade is, though but a very little, so that it may carrie a Trench Levell before you, being forced by your strength of Arme, guided from about the bottome of your Belly, as you use the Shovell in any thing you cleanse; which Spade shooe must be made with two sides, or Langers, up from the end of the bit, like as if you would plant two broad Knife Blades to looke upwards with their poynts upon a common Spade, from the end of your Spade bit, onely they must be made a little stronger, yet they need not be above Two Inches broad at the very bit, and as thin as the strength of the worke will beare, little thicker then a strong Knife, and so Narrower and Narrower upwards, untill it come to halfe an Inch, and about Five Inches long, which must be made very exact, and true, smooth, and sharpe, otherwise it will not worke forth his Coare, and furrow clearely, and easly, but will be above a mans naturall strength; but if it be rightly made, any man may easly worke forth a Trench at one time, and very fast, almost as fast as a man can thrust a Shovell under a little Sand or

Dung

Dung before him. Some have assayed to make this Trenching Spade rudely and in other formes, which I will not stand here to disprove, because their own Experience hath layd downe the use of them, but this I am certaine of in my owne knowledge is wonderfull usefull, and herewith one man may doe more in such worke as this (which to make greater Trenches is but to make more worke to no purpose,) and that more formally and Artificially, then six men can doe with their own naturall and usuall Tooles; and they shall moyle and spoyle lesse ground by many Degrees, which Toole so cutteth out his Furrow and coare, that you may within a week or two, or when you have accomplished your desire, lay it downe againe, and no whit prejudice the least grasse, and none shall be the wiser for it, or Discover within two or three dayes whether such a thing was yea or no, and so will prevent the least spoyle.

There is another Toole or two as usefull in these workes, and no lesse necessary, and this is the Paring Spade or dividing Iron, whose bit may be made all of Iron, being a strong Iron plate, with a good strong Socket, to put a strait tough Stale or Helve into, it must be made just strait every way, the bit must be made twenty Inches long, the two sides, and neather end all well steeld, the neather part of the bit a little bellied or square, and the sides a little hollow or compassed, and the end and sides as sharpe as they can be made, for the especiall use of this is now and then to cut out a Trench in vallies, & low places, where thy plough cannot come at it, but principally

*The Paring
Spade.*

*The use of
the Paring
Spade.*

to pare old Trenches after the first yeare, whose edges will grow so thick with Grasse, that thou canst not get thy water to passe currently, and to dig it will breake thy Trench, and cut it two thick, but with this thou mayst cut it as with a Cutting Knife all along thy Trench or Line, very fast, and most compleate; Thy Staile need not be so long as a naturall Spaid-staile, it must be kept cleane and bright, and it will worke exceeding easy; And thy ordinary Spades also the better they are and the sharper, and curiously kept, the better will they rid off worke by far, and the more easy, and delightfull to the Workeman, and not fur and clog with Earth, which makes the worke goe off very heavily.

CHAP. X.

Answereth severall Objections made against the Probabilities of so great Advance by Floating.

Ob.

These are but pretences.

Ans.



T may be some will still object and say, that these Affirmations are but Pretences, no such Advantage or ease as is promised can possibly be performed.

But I say againe, many Gentlemen can witness the truth hereof: Many Lands can shew it, and if thou wilt not beleeve Relation, beleve thy eyes, goe and see; he who prints my Booke, shall be inabled to direct thee, where thou mayst see more then here is affirmed.

Againe in many of the Wood-land parts in this Kingdome, as in *Worcestershire, Warwickshire, Staff-*
ford

forshire, Shropshire, and Wales-ward, and Northward, there are many more Improvements made upon course Lands, then is in other parts upon better Lands, and the Improvements made in the Woodland-parts, speaks out the truth hereof, much whereof being most Barren of all Lands, is Improved so high, as that it is at present as rich as many parts of the Fieldon, and fuller of wealthier Inhabitants. I give not all, nor all sorts of Presidents of Improvements I could, by far, but onely a few here and there to quicken thy desires after them, the Experimenting whereof will bring more to thee, if not bring thee to them.

Another he objects that it will breede the Rush, the Flagg, and Mareblab, and so this Floating Land it shall be more prejudiciall then advantagious.

Ob.
Watering
breeds the
Rush.

I answer, its true possibly, and easily it may, as I have shewed before, but be thou carefull of my directions, consider thy Land if it be dry and sound, and thy water if it be fat and Ranke, and make the drayning Trench as afore directed and never feare it, all the Difficulty is in the cold Land, and Barren water, on which also observe punctually my Directions, and Ile warrant it; Make thy Drayne deep enough, and not to farre off thy Floating Course, and water it with a good force of water, and observe the Seasons, which are all the cold of Winter when the Rush groweth not, It must have warmth to exhale, and draw it ou, and be sure to lay thy Land sound, and dry by thy Drayning course that is got under that Moysture, Filth, and Venom as foresaid that maintaines them, and then beleeeve me, or deny

Ans.

*Especially feare
for watering
Land*

deny Scripture, which I hope thou darest not, as *Bildad* unto *Job*:

Job 8. 12.

Can the Rush grow without Mire, or the Flag without Water, &c. but suppose it should breed some few (and the Mare-blab too) which is a signe thy Land begins to fatten, then take thy whole streame, or a good considerable streame, and bring upon that place, and over-flow it, as is afore directed in the third and fourth Chapter, in *December* and *January*, if it take them not away I will doe it for thee; floating Land will as certainly destroy the Rush, as Flag, and Mare-blab (being well drayned againe,) as work the least Improvement.

Obj.

Many have done great things herein and away to no purpose.

Thou wilt say, many men have made great Experiments this way, and done great workes, and cast up all againe; Either the profits would not answer the charge, or else it would hinder some other Lands advance another way, or else could not bring their Land to their desired Improvement, or else doe so little as was not worth their labour.

Ans.

I had hoped that I had laid downe such undeniable grounds, and experiences, as would have removed all those Objections; but sith they are made, have patience, and I will returne a particular answer to each clause of the Objection.

1. I say, were all this true, as possible it may in some men, and in some parts, yet be not discouraged, because of what I have said, and the Experiences made are also obvious; and in the view of them thou shalt see more made advantage then is here affirmed.

2 And secondly to confirme thy Objection, I say
We

we had some Mountebankes abroad that have held out specious pretences of wonders, as many Ingeni-
neers have done in drawing Water, or drayning
Lead-Mines, Tin, or Cole-Mines, and to that pur-
pose have projected Engines with double, treble,
and foure-fold Motions; conceiving and affirming
every Worke, or Motion, would multiply the ease
in raising the water; but not considering that cer-
tainly it must multiply the weight and burthen;
And also put such an Impossibility of Tackles,
Gears, and Wheelles for holding, that all would
fly in sunder at the very first motion, and continu-
ally one thing or other out of order, and snap in
sunder as fast as mended, because of the great
strength is required for motion; but those few In-
struments here held forth are plaine, and simple,
and my Projections; nothing but Country Expe-
riments, that I feare the plainnesse of them will
be no lesse offensive, they being only to give a
moderate ease and speed to so toylefome and cost-
ly labours.

3 I answer thirdly, that many have made some
Experiments, but those I conceive have neither
been full Experiments in all particulars, nor Regular
according to the particular Directions here given;
And so may as well spoyle all, As he that takes all or
most of the Ingredients in a Medicine, and applyes
it to the Disease prescribed, but either he misleth in
the Composition, or else in the Application; or else
if he be right in all he may faile for want of patience
to wait the issue, but casts all away as worth no-
thing.

Mountebank
Enginers
projections.

Mistakes
Engines re-
proved.

thing, and claps in with another Receipt; and so is able to give no positive Resolution what the Effect thereof might be; Therefore I say as before I have said, Trace me along in all particulars and faile in none of them, and if the issue faile, Challenge the Author as a deceiver.

4 And that I may answer the full charge, I say, take my counsell for the severall Tooles proposed, and I question not that in most ordinary Workes, the charges shall not be any proportion to the profit: But say an Acre of Land should cost thee forty Shillings the fitting and preparing of it, as possibly some may, it may lye so Irregularly, 'tis then as possible in two yeares time, the same may be made worth forty shillings *per Annum*; yea more, Many other Acres thou maist worke to as good an advantage for twenty shillings, some for ten shillings, some for five shillings, and some lesse; I could give the particular Experiments; for them all, were it more necessary, then brevity, which I so much affect, and resolve.

And for prejudicing other Lands, it is almost as if one Hive of Bees should prosper more in one Garden then twenty would, the contrary Experience constantly manifesteth, and so I have done with this Improvement: And for improving so little as is not worth the labour, that is as frivolous also; Many thousand of Acres in *England* are under this Capacity, and may be reduced to a twenty or thirty fold Improvement; yea in some parts of the Kingdome, a thousand Acres together may be wonderfully advanced

ced this way to a proportionable Advantage, and with lesse charge proportionably then a few.

The third Piece of Improvement shewes how to Enclose without offence, and how to Plough any Land to great Profit, and not to the least Prejudice: but both to great Advancement.

CHAP. XI.

The Eleventh Chapter Treateth of Improving Land by Pasture, Reproves Depopulation, Proves excellent Advantage by Enclosure, and taketh away the usuall Scandals laid upon it.

THis Piece of Improvement consists in a discreet and sober division of two soule extreames:

The one is so for Pasturing, and Grazing, as he will destroy Tillage, and raising of Come, so he may convert all to Sheepe, Wooll, and Cattell; though the contrary be of incomparable more Advantage, Credit, and Glory.

The other all for Tillage, and Ploughing, that he will toyle all his dayes himselfe and Family for nothing, rather then he will cast how he may Improve his Lands by Impasturing, and Enclosing of it, whereby he may raise more profit in Come and Cattell.

1 Extream

2 Extream.

For the discovering these particulars, I must divide it into lesser Pieces.

And first I will consider each extreame particularly by it selfe, and the usuall causes of mens Fostering and Cherishing of the same.

Secondly, I will demonstrate that Pasturing may be Advanced by Ploughing, and that Arable Land may be Advanced by Enlosure, and both by vast advantages.

Thirdly, how both these may so be done, as in each particular they may redound to the great profit of all Rights concerned therein, by holding forth that Golden meane betweene them.

Fourthly and lastly, how all this whole Advancement, shall distribute it selfe, in some just proportion of Advantage, to all Concernments, that chiefly the Common-wealth may have the largest benefit; but primarily the poore their particular Advantage; and then all others, in every degree (as they have of right) shall have their Proportion.

And first that Pasturing may be advanced exceedingly, especially that which is so old as that it is overrun with Nettles, or Dockes, and great Ant-hills bearing whines full of Prickes, like Gorse and Wilde Tyme, and little else, or else overrun with Mosse, that it will beare little else, of which are many of our second sorts of Pasture, feeding grounds in England, worth betweene Ten and Twenty shillings per Aree, and this Land of all other is most naturall to be advanced,

vanced, and that by moderate Ploughings, for al-
though I am an absolute Enemy to that accursed
Depopulation, *of laying House to House, and Field to*
Field, till the Poore be destroyed, And say Amen to that
curse pronounced, and beg of God to reveale a way
of Reformation of it.

Depopulation
an unred and
reprehended

Est. 5. 8

So am I also to our Common way of Ploughing
Pasture Land, no lesse an Enemy, which is as long as
it will carry Corne (out of a greedy desire of the
profit it brings with it) neither looking at the losse,
the Land-Lord suffers by letting it at an under-va-
lue, many yeares after, which many times is as much
as they gaine by Ploughing; I have knowne Land
not in seven yeares come to the old Rent, some not
in Ten, and some possibly never; Nor at the pre-
judice it may be to their posterity hereafter, Nor at the
ruine and destruction of their Land, so Impoverish-
ed; I abhor both Extreames; And yet will justify
my Assertion (*viz.*) an Incomparable Improvement
to be raised out of both. Therefore in taking an in-
placeable offence at these grosse abuses theye not
suffer the thoughts of the greatest advance in the so-
ber use of Ploughing thereof, but strongly harbour,
because some over Plough, therefore Plough none
at all. What destroyes his Pasture? his Sheepe
walkes? his old Land; (a way with such advice) and
so because such a Merchant by Improvidence lost all
and became a Bankrupt, therefore away with that
Profession. Ile let my Money to use, I am sure of
good Security, and we have so strict a Law, that I
shall be sure to recover my Money or have his Car-
kas; And as for the Curse of God upon extortion,

Not Plough-
ing old Past-
ture, a great
Enemy to the
Kingdome

or the Curse of the people he cares not, he shall have a certaine quiet undoubted Profit, without Adventures, although the Merchant for most part brings in double profit to himselfe, and Advantage to the Kingdome, Merriits Fame and Honour when the other shall Ignomy a Woe and Curse.

Cavels against
Enclosure.

And on the other hand, saith the other Extreame, What inclose, Depopulate and destroy the Poore? No our Fathers lived well upon their Land, and so wil wee prevent Enclosure, if we can, we will Moyle and Toyle rather all our dayes, we will keepe our Children at home, and save charges, turne them into the Field to keep Sheepe, and Kick up their Heeles upon a Balke, Looke to our Beasts, Flit our Horses, and houke our Oxen, breed them up our selves to take our Inheritance of Thirty, Forty, or Fifty pounds *per annum*, when very many have much a doe therewith to bring both ends together, as most frequent experience shewes, *Not considering the fruit of Idlenesse, nor their Childrens Ruine for want of Learning, and Activity, losse of Trade, and gallant Breeding. The least whereof is more worth to them then all their Lands; witnesse thousands in England, who prefer their Children better with a little good breeding without a penny Portion, then they shall theirs with their Inheritance.* And I feare not before the end of this Discourse, to hold out this principall as destructive as the other.

Thousands of
Acres yeeld a
double profit
under plough-
ing & not the
worst for the
surer,

Neither am I ashamed to maintaine, as a reproofe to the first Extreame, that many ten thousand Acres of Land in England, may yeeld a double profit divers yeares, by ploughing, and afterwards yeeld as much

Rent

Rent as ever before, and possibly much more; Nay, I say, observe my Directions punctually; And I will make good the old Rent the very first year, after Plowing, and begin to enter upon it as soone as the Crop is reaped off, and begin my year with Winter, which is accounted the worst Advantage to the Tenant, and so for Seven, Ten, or Twenty, upon most sorts of Lands in *England* of the aforesaid Value; But to stop the mouthes of such Madcaps in each Extreame, and make good my Proposition; I will begin with the last first, and try whether I can hold out Enclosure without any Depopulation, or the least prejudice.

And say that your Arable or Common Field Lands, or common Heathes, Moores, Forrests may be highly Advanced; that is out of question I suppose, denied scarce by any, that have had seven years Experience of the Disproportion betwixt the Profits of one Lordship in Common, and the next adjoining to it Inclosed; The one worth three hundred pounds in Common, the other neare a thousand in Pasture.

Enclosure
held forth
without De-
population.

Now here lyeth the Trick indeed to make this Improvement, and neither Prejudice Poore, nor Minister, Labourer, nor Farmer, Tennant nor Landlord, One nor Other, that hath any proper Right or Interest therein, and not Depopulate.

For the holding forth of which, I will take in the third and fourth particular together, And therein I will Demonstrate such a Method, or way of Enclosure (without Depopulation, as all men in particular shall have a Proportionable Advance thereby,
And

And the Common Wealth a Double or Treble, and Tillage Advanced also, and so the one Extreame prevented, and no man hindred, all which shall admit of no other Inconvenience than this, viz.

enclosure pre-
vents Idle-
ness and Op-
pression

And prevents
a Rot.

The prevention in great measure of *Idleness* and *Oppression*, 'tis true, it will remove or take away a man may be a Shepheard, or a Boy or Girle from keeping Cattell, who are more fit for Schoole or Trade, and put the Shepheard to the Spade, or it may be prevent some great Oppressor of the Commons, that drives off all poore Commoners off their Commons by his great Flocks and Heards, whom this Project may drive off his Sheep walkes, who lives just upon the Common side and eates out the Poore, and others that live more remote; And also happily prevent a Rot, which usually is once foure or five yeares in most part of the Kingdome, which destroyes all before it, and consumeth the Care and Paines of the Oppressor, and others together, of all the other yeares profit at once; And possibly may for a little season bring downe the Price of Sheep, Cattell, and some other things (by reason of plenty of Sheep so suddainly destroyed) to a low rate; Which were it not for that Rotting Deluge their Increase would be beyond *Arithmaticall* Demonstration; But for a long Season afterwards raiseth them to a double Rate immediately againe: And possibly it may be as an Engine to facilitate most parts of Husbandry, and cause a great deale of worke to be done with fewer hands, and yet before the Discourse be ended, I'll find all sorts worke enough to all mens Advantages whatsoever, and these are the Inconveniences,

conveniences of Inclosure and Good Husbandry ;
Others I know none , the conveniences follow
also.

CH A P. XII.

*sheweth the Land capable of Enclosure , And
the Method of it, how it Advaneth the Pub-
lick Weale, and all particular
Interests.*

ANd to this end consider that all Lands ca-
pable of Enclosure , are either Com-
mon Fields and Arable Lands : Mens
proper Right, and Inheritance, Or else
Common Pasturing upon Heathes, Moores, Marshes,
or Forrests Lands.

Lands capa-
ble of enclo-
sure.

For the Enclosure of your common field, Arable
Land, I lay downe this Direction; All Interests to
be provided for, which I conceive may be reduced
to these foure.

1. First, either Lord of the Soyle, or Land-
lord, or,
2. Secondly, the Minister to the People, or
else
3. Thirdly, the Freeholder and Tenant , or
lastly
4. Fourthly, the Poore Labourer or Cottier.

All which having some Interests more or lesse,
shall be seriously considered of.

Therefore I begin with the last, the Poore Cotti-
er, or day Labourer , And provide for him , And
K looke

Cottier pro-
vided for.

looke what Right, or Interest he hath in Common, He first allot out his proportion into severall with the better, rather then with the worse, a Proportion out of every mans Inheritance, and so much, or so many Cattel as he may keep in Common, hee shall keep in Pasture, or rather more, at as easie a rate as they pay for it in Common, for there lives that now live upon it: And ever after at an under Value, and so I cannot possibly conceive that hee hath any cause to be offended.

Labourer provided for.

And for the Labourer, you shall see how I shall provide for him too before I have done, besides the allotment of his Proportion, as to the Cottier, or to what Right soever he hath of due or Custome.

Minister provided for.

Then for the Minister in the next place, because he hath seemed to be the Opposer of it, most usually: And truly so he had good reason, as the state of things formerly stood with him: (For though I believe that Tythes are neither consonant to a *Gospel Minister*, the List of which dispute I intend not to enter into, nor yet Conducing to a sweet Compliance with his people) Yet I also say, that should a Minister either have accepted the Peoples benevolence of our ordinary *English* Parishes for his pay: Or have stood to the Courtesie of the Lord, or Freeholder, what he should have had upon the Inclosure: I feare, for the one it would have been too little for a Ministers Maintenance: And for the other, he might goe barefoot, and his Family a begging, for what they would Contribute to his Subsistance.

Tithes not Gospel waies maintenance.

And therefore would have him to have his Proportion

portion next, and a very substantiall Livelihood allotted out of the Lands Inclosed, untill the State shall settle a more better or certaine way of Maintenance for him; if there be either a Competent number of people for him to preach unto; or Competency of Land to raise it from in every Parish, or else two or more Parishes that joyne conveniently to be laid together: (And according to what his Right or Proportion) (if he have it in way of Tything) to be Inclosed, or cast into Pasture for him by himselfe, with as much Conveniency for his dwelling as may be.

And where either Inclosure cannot be agreed upon, or made (as possible in some parts it may not Consist with all mens Advantages) I conceive there may be an Agreement made for the allotment of the Ministers Proportion, to be cast into Pasture, so that were his Tenth Enclosed, it would be so gallant a Maintenance for him; And contentfull to all Parties, that it would remove all troubles, or occasion of Confusion, and Increase Love and Unity, which Tythings have ever occasioned Divisions and Contentions: Which either he may Employ his Wife and Family upon part thereof for necessary Maintenance: And set (with much more ease) the rest to free his Family from Care and trouble: And so receive his pay every halfe yeare without the least Distraction. I would have him to have such a large Allotment and Proportion, as might enable him to be Capable of Hospitallity, *of which he is to be a Lover*, and farre better able to give then to receive, and to Administer toothers, then to be administered

ministred unto by way of Charity.

The Depopulation reproved.

And as for the great depopulation in the Kingdom that hath devoured poore and Tenant, overthrow Corueing and good Husbandry, and in some parts Minister and all, and yet persist by keeping their Land from Tillage when it wants it; when Country, Kingdom, the Landlords profit, the Markets, the Labourer, Poore, and Land it selfe and all calls for it.

Impropriations to be thought of.

As also for other places where no Maintenance is assigned for the Minister, but the People starve for want of Bread, and where those great Impropriations are that devoure all the Profits, and have all to a short-coat Vicaridge; How these things should be mended, is infinitely beyond my Sphere; and how Ministers should be raised, Maintenance and all Interest preserved, I know not; only I shall pray the wise God to direct our highest Counsels in regulating these distractions, for it is farre beyond my shallow capacity how to advise.

Free-holder.

And for the Free-holder and Tenant, I question not the Free-holders offence; for he having his proportion I know it will be doubled and more.

Tenant.

And for the Tennant let him also share in some Advancement, either let him enjoy it at an easie rate, that looke whatsoever Bargaine he hath in common by the Yeare, he may have a better upon the Enclosure; or else let him take a Lease for Lives, or Yeares, that as he enjoyes the worst, upon the first Inclosure, so he may the best also, having a good Tearme of time therein, and then I hope he will not wrangle neither; for I am sure he need neither

Moyle

Moyle nor Carke as he did before, but manage his businesse with more ease, sweet content, and profit.

And for the Land-lord or Lord, I shall not much bespeake his favour, or Approbation, for he will beleeve me without Demonstration that there will be a visible and considerable advance fall upon him, only crave his patience, that he'll not be offended, that I seeme (and but seeme so to doe) to project to give away his Right as to the Poore, which in Common is there owne, whether by Right or Custome, (for I speake of no other in this place but such as have right of Common) and so they may require so much by Law; but to encourage them, and to remove offence and scandall I advise it. And when all these particulars concerned in their severall Rights are satisfied, we shall doe well; and yet the great Block and Prejudice is yetto be removed, which is, The destruction of Corne, and Tillage, which I promised to cleare, which followes.

First I indeavour before Enclosure, that either by Ingagements so firme and surely made, by all parties concerned in it, as they may fall under Law to be recovered; Or else by a particular State Law enacted to this end, so to Ingage all men in this new Inclosure to allot, or cast out one third part or thereabout at least of all their Lands constantly for Tillage; or what more at any time they please, One third part for Meadow, And another third part for Pasture, or seeding Land, which third part for Tillage if my conceptions faile not, First with the helpe of all that Soyle that the Hay of the other third

Lord of the
Soyle, or
Landlord.

How Inclo-
sure shall not
prejudice the
inc ease of
Corne or
food.

Four Argu-
ments to prove
the advantage
by Enclosure.

part will raise in maintaining all the Cattell in Winter, that they Pastured in Summer upon the other third part, which I conceive may be as many more; and also,

Secondly, by that advantage there will be sometimes Ploughing on Pasture, and resting Another, whereby fresh Land and Restey for some years will beare more Corne without Maure, then it did before with it, and indeed also after some yeares of resting may stand in need of Ploughing, and possibly may advance the Land by it, as I am sure they will, all our Wood-land, courser Lands whatsoever, that are either subject to the Mistle, or Rush, or Ant-hills whatever it will doe to better.

Thirdly, well knowing (that without question) one Acre of well Manured and Husbandryed Land, will yeeld more fruit then two or three otherwise; A principle undeniable.

Fourthly, consider the vast advantage there will be by Husbandring a little well, I say, it is cleare some one Acre Manured, Ploughed, and Husbandred in season, and unto that height of Richnesse the Land and Seed sowed doth require, may and doth usually beare as much Corne as two or three ill Husbandred as aforesaid. Then ballance the Businesse, and weigh but the Advantage. One Acre beareth the fruit of three, the two Acres are preserved to graze, the Seed and all other charges of two Acres is preserved to helpe the Markets; The Husbandry, and Ploughing, and Sowing of two Acres is also saved. Oh consider it, and neither be such Enemies to the State, nor of your selves and Common-Wealth

One Acre
brings forth
as much as
three.

Wealth so great Abusers, nor of Ingenuity and Good Husbandry so great Traducers; When men have their Lands enclosed, and at their owne command, I feare not but most men will covet to Husbandry every Acre so well, as it may yeeld forth the utmost fruit it is possibly able to produce, having the rest at their own Command also, to employ to another Advantage. Which done halfe the Land in *England* thus managed would yeeld more then all that now is under Tillage. This stoore Piece (but by the by) observed, and practised I would make good the Improvement promised.

5 Fifthly, also if you consider that all your Common Fields, were never under Tillage neither, A great part Slades and Hade wayes, and a great part Meadow, and much and many Balkes betweene each Land, and many high wayes, and some commune of Pastures and Leayes left for keeping Beasts or Sheep upon, All which will containe one third part as I conceive, it not neare halfe in some places, not under Tillage but wast Lands, Certainly I conclude there may be as much Come got by Ingenuity upon this lesser quantity of Ground, and much more being Inclosed, then upon it all in Common; And that there cannot be any destruction of Tillage upon all these Wasts and Grazed parts which ever lay to Grasse and no Tillage was upon them, so that I must clearely conceive, were one third part upon all Enclosure allotted out or covenanted to be kept constantly in Tillage, though I advise not to keepe the same third part alway in Tillage, but some times one part, and
some

Englands Improvement : or
 Some times another Ground, all making up on just
 third part, would raise as much Corne, as all did in
 Common.

CHAP. XIII.

*Sheweth the Excellency of Tillage, and the great profit
 thereof, and the great Advance is made out
 of severall Enclosed Countrys in the
 Kingdome beyond Champaign
 or Fieldon.*

Tillage great
 Profit.

NOW Tillage yeeldeth the greatest profit
 to Land-Lord or Occupier, (study especially the *Good Husband*) to convert thy
 Land to the best profit, And that is held
 and maintained by all men to be by Til-
 lage, else why doe men give double Rents to Till
 and Plough, above what they doe to Graze, and if
 thou art not yet satisfied, consider but the Wood-
 Lands who before Enclosure, were wont to be
 releevd by the Fieldon, with Corne of all sorts,
 And now are growne as gallant Corne Countries as
 be in *England*, as the Western parts of *Warwick-
 shire*, and the Northerne parts of *Worcestershire*, *Staf-
 fordshire*, *Shropshire*, *Darbyshire*, *Yorkshire*, and all the
 Countries there abouts.

Also consider the Chilterne Countries, and you
 shall finde thht were it all Inclosed men would
 Plough little or no whit lesse then now they doe, be-
 cause nothing else nor no way else would yeeld the
 like Advance.

Con-

Consider *Hartfordshire, Essex, Kent, Surry, Suffex* &c. All which not onely raise Corne for themselves, but to supply that great City, that Spends as much as all those Countries, and far more : And yet no parts of *England* set at greater Rates or makes greater Advantages by Grasing, and yet the greatest part thereof upon Tillage and Corning. And what Countrey not almost though Inclosed, yeelds the greatest profit by the Abundance of Corne produced; But if all that I have said be not enough I have enough I am sure.

And that He draw forth of the other Extreame which is in men so meddled to their Ease, selfe profit, and Content, that they never looke what may make most profit to the Publike, or good of the Common-wealth, themselves, or Posterity; He is seated in a way of Feeding and Grazing, with a constant Stock of Breeding, and let his Land be fit for one, or fit for another use, he matters it not, he hath received a Prejudice against Ploughing, partly because of the Toyle and Charge thereof, and partly because, as aforesaid, some men have Ploughed their Land so long as they have Impoverished it much, And some men so long as it is possible it may be many yeares before it Soard Compleatly, and therefore let it be Dry, or Moyst, Sound, or Rotten, Rushey, or Mossy, Fenny, or run over with a Flagg Grasse, or all Hills Mossure or wild Tym, let it keep more or lesse, heele not alter, tell him Sir it will yeeld abundance of gallant Corne to supply the whole Country, and raise great Summes of Money to your Purse, and afterward (if you Plough Moderately) it may

L

keep

Second Extreame.

keepe as many Cattell, nay more, yet nothing takes with him, he will have no Enclosure Ploughed by no meanes, yet seriously weigh these ensuing particulars; And then use thy owne will and pleasure.

A second sort
of Courser
Lands the best
ly Land for
Ploughing;

But to make good my promise herein; I must first premise, that my Designe is mainly upon a second sort of courser Lands, betwixt twenty shillings an Acre, and ten shillings or a Noble, out of all which will come a great Advancement to no prejudice at all, and is one of the six Pieces of greatest Advancement promised. Although the best sort of Land of all will yeeld the greatest profit, yet not without some seeming little Prejudice to it, And also this will best continue and hold his beauty, and strength, and Improve upon Grazing rather then lose, which the best sort will not. And of this best sort of Lands with the Improvement to be made thereon very Considerable, I shall also speake under the sixth and last Piece of all: And shall now set forth how the Ploughing of all such Lands, according to the Designe projected which shall be a supply or filling up, and running over of the measure of plenty, in case Inclosure should decrease it (which I am confident upon the consideration of the aforesaid Reasons thou canst not Imagine) and so remove that Extreame also. In which Projection I shall tell thee that if thou wilt follow the Rules prescribed, thou shalt double the prizes of thy Lands for the present time of Ploughing, and after lay it downe better for Grazing then thou tookest it up to plough, Only consider that of this second sort, there be three natures, the

First,

First, Sad and moyst strong Clay and cold.

Second, Mixed with divers Earths.

Third, Warne, Sandy, or Gravelly.

The first natured Land advanceth it selfe most by Tillage, yet raiseth Corne in abundance also, but the two other latter natured Lands advanceth not so much in it selfe, as in that wonderfull increase of Corne it yeeldeth to the Kingdome, I verily beleeve that Lands of these latter natures are as fruitfull and kinde for Corne (especially if they be resty) and for foure yeares may produce as much increase to the Strike or Market as that Land that is as Rich againe, or twice as Rich, for as the Corning Land may as well be too good as too bad, and I had farre rather make choyce of a middle sound warme Land, then of the richest, and fattest that is, for this will yeeld it selfe and hurt more to the Corne then the other, and yet this also may be bettered with wisdom used in the Ploughing for Grazing also.

The midd'e
sort of Clayest
strong Land it
advanceth it
selfe by Til-
lage.

The warme
lighter Land
advanceth
most in Corne
to the Com-
mon-wealth.

First therefore consider the nature of this first sort of Land, and the way of Husbandring it, to inable it to produce the promised Improvement; And so I begin with that which is of a pure Clay, or of a little mixed nature either with Sand or Gravel, and yet is of a cold temper, and so is neither so wholesome for Cattels lodging, nor so fruitful for their Pasturing; Which sort of Land is many times over-run with Ant-hills, which are best destroyed this way, being opened, the Soard taken up, and the Coare taken out, and scattered before the Plough, will make all the Land Plough the better, and also lye better, and the Mould will helpe a little all the parts

How to banck
Ant-hills most
speedily.

of the Land they are spread upon) and Rushes and Mosse in abundance, may many times so over-run with them, that they are so thick and noysome, that they not only hinder the Earths naturall fruitfulness, but the Rushes are so thick and high in many Pastures, that the Sheepe many times make them for their Refuge, to preserve themselves from the heat, that oft-times they are sheltered so long by them untill they be lost by the Maus, Maggots, or Vermine; A great prejudice to the Grazier, or Breeder; All which is certainly occasioned by the Moystnesse, and Coldnesse of the Lands, which will no way more certainly and Advantageously be removed but by Ploughing these Lands, which course although by many men it be thought an Impoverishing of the Land, yet I absolutely deny the same, and Affirme both from mine owne Experience, and the Practise of those that have made tryall thereof, that it shall most wonderfully advance the same for present, and future; Over-Ploughing indeed weakens Land, Extreames on either hand are dangerous, and destructive; Food and Bread sustaineth nature, but Gluttony destroyes it; Wine nourisheth the heart, but Drunkennesse drownes it; And as over Tilling and forcing out the heart is worst, so I say, not then to Plough when the Land is run to Mosse, and to these corruptions, is no lesse bad: And being done with wisdome and moderation, is farre more advantage then not to Plough; And this my selfe have offered familiarly for Lands of this nature, worth, and quality, to give a Ploughing or double Rent for the same according to his naturall worth for three

The best way
to destroy
Rush or cold-
nesse in any
Pasture.

Moderate Til-
lage must
needs advance
Land.

or foure yeares, but not above, as hath been con-
 ceived the Land hath been able to beare; And then
 after Ploughing the very first yeare to give the old
 Rent, and take a Lease for Ten, or Fifteene, or
 Twenty yeares at the same rate, whereby let Inge-
 nuity Judge, what Prejudice this may be possibly;
 For the time of Ploughing the Lands may yeeld dou-
 ble Rent, some more, some old Rent, and halfe
 Rent, and some one third part more then old Rent;
 All which I conceive is a great Advantage, with ano-
 ther secret advantage interwoven with it, as an Ad-
 dition to the State, which is the raising of a great
 quantity of Come to the use of the Common-wealth,
 The setting of many Poore on worke, The raising
 Straw, which wintering Cattell with, may raise such
 abundance of good Manure, Dung, or Soyle, as may
 enrich a great part of the same, or some other Lands,
 and were there no other advantage but helping the
 Common-wealth herein, I hope no honest publique
 spirit would oppose it, many Lands lying under this
 Capacity lye in the South part of *Warwickshire* and
Worcestershire, *Leicester*, *Nottingham*, *Rutland*, some
 part of *Lincolneshire*, *Northampton*, *Buckingham*, and
 some part of *Bedfordshire*, and in most part of the
 Vales in *England*, and very many parcels in most
 Counties of this Kingdome; And this I say againe,
 doe but observe my Method, and strictly trace my
 Instructions, and pursue them all along, I dare make
 it good upon most Lands of this Kingdome except it
 be upon that which is a harsh binding churlish nature,
 which will also admit of a good Improvement though
 not so good, especially when it shall be over-growne
 with the aforesaid Annoyances.

Advance for
 Ploughing,
 and the old
 Rent the first
 yeare after.

An offer made
 of making
 good a Lease
 after Plough-
 ing of old
 Rent, and a
 great advance
 in Ploughing.

CHAP. XIV.

*Sheweth the manner of Ploughing, and working
Lands to so great Advance, with two In-
credible Presidents of Advance.*

*Stratford up-
on Avon Pres-
ident.*



Here is a Parcell of Land in Warwickshire, neere *Stratford upon Avon*, that is Oaded every fourteene yeares, and Corned divers yeares after that; and so there may be many more Parcells also besides this I speake of, and so I believe there is, and after that fourteene yeares rest and Grazing, Oaded againe and Corned also: So there are some in *Northamptonshire* will doe the like; And so runnes round, Grazing-fits for Ploughing and Corning, and Corning-fits for Grazing; A most gallant opportunitie; Doubles the Grazing-rent, while under Corning, and more under Oading; And Grazeth againe immediately at a very considerable Rent, and might doe the first yeare at old Rent, and so forward, Would they Plough but three or foure yeares according to my direction, but they Plough five, six, or seven; Such a Method would please me gallantly, advance the Common-wealth Exceedingly; And prejudice whom, I would faine know: Abundance of poor set on work; Abundance of Corn rayfed; Abundance of Straw which spent and fed upon the Land, shall make that up againe whatever the Ploughing fetched out: Doubles Rent and more, foure or five yeares in one and twentie: And so every Age neere fetch-

fetcheth in the Purchase; And the Land where it was, and would be as rich as it was, if it be not, (my directions observed) a great Estate rayseed out of nothing: Why not thus in a thousand other parts of this Kingdome, as good Land and better, and as suitable to this Advance?

O Sloth! stand by, and let Ingenuitie try a Trick or two more, and wonder at thy owne Ignominy and Weaknesse.

Secondly, consider thy Land how it lyeth, whether round with Ridg and Furrow, then use your owne discretion for the manner of Ploughing; for the first yeare however, Plough it as well as you can possibly, both cleare from Balkes and Slips, and of such a stich or depth as the Land will bear; however goe not under the true and naturall soyle of the Earth, neither Plough it too thick, for that will be a great prejudice to your second Ploughing, because your Furrowes will rise most hard and stubborne, and so moile both Teames, Work-men and Servants, as is incredible. But if it be Lands & great Balkes together, then for the Lands Plough them as you please, that is, whether Ridge-Are, or Cast them, but for your Balkes before you, Ridge them all. And although it will aske paines, cost and hot water, yet faile not herein: And though the Rushes be thick and strong, yet be not discouraged; Mow the Rushes in the beginning of Winter, as low as you can possibly, and then you may with paines, and patience, a good Teame, and good Ploughs with sharpe Irons, All made true, sharpe and smoth, doe it with incredible dexteritie; faile none of these directions, you cannot

The manner how to Plow such Lands.

Mow the Rushes.

Especially directions for Plowing.

not conceive the wonderfull advantage in this exactnesse; And were it so, the Land were such as there must be required as much cost and paines with the Spade, as with the Plough? I would bestow it, and never question how it shall answer the same: For, say the cost be extraordinarie, and say one Acre cost thee as much over-comming it, and laying it round, sound and faire, as usually thou or others bestow on two or three Acres; Yet what is that to the fruit or profit it may produce? I dare say, one Acre of Come thus thoroughly husbanded, may be worth two Acres, nay three, flubbered over and done many times, and as most men commonly doe therein; And what is it to lay out five shillings or a noble extraordinarie in everie Acre, and reape it in the Pounds, as I dare say you shall in the two first Crops, which are the onely Crops requiring such exactnesse. I would tell thee an Experiment if thou durst believe it, 'tis this; I once held a Piece of Land worth nine shillings an Acre, and no more to a Graze; I gave fifteene shillings to Plough, it was great Lands, and as great Balkes betwixt them, full of your soft Rushes, as high some of them as any ordinarie Beast, and lay very wet; The Land conceived by me not able to beare Barley, it was so Weake and Barren, so cold and queasy: And the neighbours very able husbandmen round about so discouraged me (out of their love unto me) as that they desired me to forbear Tillage of it, because it would never answer ordinarie cost bestowed on it, nor be worth an old Grazing-rent to Plough, and that they cleared to me by very cleare Evidence, as they conceived, saying, Such Land

Experiment
of plowing
the second sort
of Land, and
the fruits of it.

Land next unto it which was farre better Land, (and indeed so it was very neare as rich againe) husbanded by very able husbands, the best in that Countrey; And that Land good Barley-Land, yet never answered the pains and cost bestowed, yet I resolving to make a full tryall thereof, I set upon it according to the prescription aforesaid, Each Acre Ploughing and Harrowing, Spading and Dressing (for indeed I made Harrowes on purpose also) of divers Sizes, it cost me about fifteene or sixteene shillings an Acre the two first Crops, the very Dressing of it; And for these Crops, being but of Oates, I could have had five pound an Acre, being offered it by an Oate-meale-man of himselfe, though never asked, growing upon the ground; Nay, six pound an Acre, if I would have sold it, which is a vast rate for Oates in the middle of the Kingdome; And indeed I found the ground so poore, that it would not beare Barley, for I tryed some Acres of the best Land in it, but it was not worth an Acre of my Oates, and after Ploughing I gave the old naturall Rent as it was ever set at or really worth, and that for many yeares, and the Land is better, lyeth sounder, warmer, and both yeelds more Milke, Summers as many Cattell, and Winters farre more, and feeds better then it did before.

A President of
the fruit that
came of poore
Lands worth
but nine shil-
lings an Acre.

C H A P. XV.

*sheweth the best, and most advantageous way of Plough-
ing, and Husbandring Lands, so as most to Ad-
vantage it, in laying downe Land to Graze,
to make good the Improvement promi-
sed, and not to over-plough, as
you tender the losse of
your Land.*

To lay open
furrowes.



TO this end be sure to lay your Furrowes open, and cleane scoured up, and capable to receive and carry away all your standing water, or soaking moisture, and be sure so to Plough your Lands as you may cast your Lands into severall Furlongs, that you may have one Furrow or Drayne run into another, and that next into another, and so into the Master Trench, which if it cannot be made deepe enough with the Plough, let it be done with the Spade substantially; And so from one to another, to carry away the Water, that it may neither annoy your Corne throughout your Field, nor your Land when you come to lay it downe, and then when you have Ploughed your Lands, wherein the more truth and exactnesse you observe therein, the more fruit expect.

And when you come to sowing your Lands, you must get very strong weighty Harrowes (if you would doe it indeed) and not slubber it over (as most doe) long tined and sharpe, and either they must be so weighty of themselves, that they may
work^e

worke a gallant strong Teame to draw them, or else so loaden with weight, that you teare up rough uneven places, and raise good store of Mould, which is a marvellous great Advantage to the Corne; as for the ordinary way of Hildeing Land as most doe, is Reproveable, and then with two or three sorts of Harrowes, each Harrow having his Teeth, or tines thicker then other, which will so curiously and certainly cover your Corne that you will have little or none lye uncovered, but well moulded, which will give such strength, and heart unto it, as by Gods blessing you may expect a Crop answerable to your cost bestowed, and farre greater.

The next direction is, that as I cry up Ploughing, as a soveraigne meanes of a great Advancement, so I also as much decry Over-Ploughing, or the Ploughing of Lands as most doe, some Plough as long as it will beare any Corne, and others as long as it will beare good Corne; And others they Plough on any fashion, lay their Lands, as though they were over-running them, both to Corne and Graze, and when they lay it downe, cast them low, and lay them flat, uneven, full of Balkes and Holes excellent to hold water, they matter not after what manner they leave it, nor after what Graine, I therefore prescribe onely three or foure yeares to Plough unto this sort of Land, not lesse because the Rush, Filth, and Earth will not be rotted, nor well compounded; nor the nature of the Land changed with fewer Tilths, nor the Lands well brought to a good height, roundnesse, and driness in lesler time; for if it be cold Land, all that can possibly be done will

What Har-
nesse and Har-
rowing is most
advantageous,

Our Plough-
ing cryed
downe.

Our Plough-
ing reprov'd.

Reasons why
but three or
four yeares are
prescribed for
Ploughing old
Pasture Land.

Last Crop may
yeeld most
Corne, but
worst for the
Land.

To lay downe
Land upon the
Wheat, or Rye
Stubble is
best, and the
reasons of it.

not lay it high and dry enough, nor the Mould wrought to her perfect tenderneſſe, and true Mixture, whereby it may yeeld more fruitfullneſſe; but if the Land be very rich of nature, and not well wrought, nor the Ruſh perfectly deſtroyed, nor the Lands brought up to a convenient height and roundneſſe, then one yeare more may doe well, which yeare ſhall yeeld the beſt Crop out of all queſtion, but will draw a little more from the ſtrength of the Land, then any of the other yeares did; and if the Land be in ſtrength, it may very little prejudice it, and therefore this I leave to every mans pleaſure, upon this Conſideration, and could wiſh that all men would ſo Plough, as mainly intending the Advance and Betterment of their Land, eſpecially Paſture Land, and no otherwiſe; For you were as good loſe ſome of your Inheritance (as you doe) in my opinion, Or as good loſe the Land which is but the Carkeſ, as the ſtrength and vertue which is the Heart and Life of it, for therein is the Common Advantage, when the Earth yeelds moſt increaſe, or fruit, and a little parcel yeelds abundance.

Fifthly and laſtly, I adviſe to lay downe all Lands of this nature upon Wheat, Meſlin, or Rye Stubble, which wil exceedingly thicken and Improve the Soarding, and if my Principles faile not, wil raiſe as good a Soard in one yeare, as after any Summer Corne whatſoever wil in two.

Fiſt, becauſe it hath one halfe yeare more to Soard in, then after the Lenton Tylth, and ſo is ſomewhat Soarded before Oates, Barley or Peaſe are ſowne.

2 Secondly because winter Corne groweth thin, long, and a stronger Straw, and gives more liberty to the Grasse to grow, and spread the Thicker, and the Soard will also be very Rich, and Fruitfull; I likewise advice to sow this Land, as yerly as possibly you can, even as soone as your other Crop is inned, the sooner the better, unless the Condition of the Country very much oppose it, how ever the Earlier it is sowed, the better is the Crop like to prove, because these Graines of Wheat or Rie &c. require the Land to be in better Tillage then this can be: Therefore helpe it what you can possibly, by seasonable and early sowing, that it may have as much Summer as may be, and by all meanes Harrow in your Corne after it is Ploughed; For this is more certaine to produce a good Crop. And secondly leave the Ground even, and smooth to Graze, yet forget not that your Lands be left High, and Round the Colder in nature the Higher and Rounder as aforesaid, and each Furrow be Scoured up as cleanly as you can possibly; These simple particulars really Observed, and Practised, will bring the Land to that condition that I shall make good what I formerly promised, and to this particular I shall say no more for present, onely this may be applyed to any of this second sort of Land, be it of what Mixture, or Composition soever that is Banky, Mossy, and Rushy, and will have a proportionable effect promised; But if possibly you could run over a good part of this Land with Dung, before you sow your last Crop, or so much as you could, it would produce a double Advantage of the cost bestowed, towards the Sowing

The way of
Sowing Land
to be left after
to Grasse.

Dung laid up
on the new
fresh Turfe,
works wonders.

ding of it. And if after you have Reaped your last Crop, you could then run it over againe, with any quantity of Muck, or Compost, it might so nourish your Land, and that for many yeares after, possibly it might be neare as good againe upon the old Soar- ding, as it was before; for you would wonder how much good one Load of Manure doth upon the Land so Tender, Wrought, and Mixed, beyond what two or three Load will doe on old Soard, or old Pasture so Rough and Filthy, nothing will make you to beleieve this, but your owne experience. Let me prevaile herein (good Reader) to make a tryall, it will be to thy benefit, be not an Enemy to Tillage, nor raising Corne to Poore, and Common wealth, and if thou expect better Satisfaction, take it from divine Evidence, and from the Conclusion of him that spake by Inspiration, as well as from naturall Experience.

When on
Load of Man-
ure will goe as
fast as two or
three.

Prov. 12. 11

Prov. 28. 19

Prov. 13. 23

Prov. 11. 25

Prov. 13. 23

He that Tilleth his Land, shall be satisfied with Bread, and shall have plenty.


Much Food is in Tillage for the Poore. And if this satisfie not, carry this one Text (if thou canst remember no more) along with thee into thy Pastures, when thou art in thy greatest Glory.

He that withdraweth Corne, the People shall Curse him, and a blessing upon his Head that selleth it. But he must get it first, And so we ought upon that Land as will most freely yeeld it, which I conceive is a maine end wherefore Thou and Thy Land was first created. Be not envious to thyne owne good, nor wilfull to thy owne profit; I am much abashed to use so many words, to presse so plaine Simple Principles, thought

though to be well knowne to all (and possibly they may be, better then to my selfe) but truly the little Practise of them, and the Scorne men carry in their Breasts to learne, and that Thirstinesse in me after the Common good, occasions all this Rudenesse, to see thousands of Opportunities so neglected makes me amazed.

CHAP. XVI.

Briefly sheweth the way of Improvement of Forrests, Heathes, and Common, And by more Arguments makes good the unprejudiced Advance by Enclosure, and Quotes Tuslers, Rimes for him that hath not Reason.

S for your Heathes, Moores, and Forrest Lands, I shall onely speake thus much, That vast and Incredulous are their Capacities of Improvement in generall, refering the particular waies of Improvement of every sort, and differing natured Land, as they fall in the fourth or sixth Piece of Improvement, to avoyd prolixity, because the very same Ingredients, Compositions, and Directions, are suitably and naturally Applyable to these Lands, as to those to which they are prescribed.

Therefore I onely say that all Interests in these Commons, or Rights of Common Pasture, upon any of these Lands, may without Prejudice to any Particular Interest, be much Improvement made

Onely Right in Commons, not Vsurpes I speake to.

to the Kingdoms; I speake not to inright the Usurpers of Right wrongtully maintained, or Oppressors of any other mens Rights, I desire that Right might onely run in it proper Chanell.

At the first
Enclosing of
any Common,
how to cast
out Land to
the greatest
Advance.

First in generall by the same Method of Enclosing, held forth in this third generall Piece of Improvement, touching Common Field-Lands, if thereto, before Enclosure you doe but adde the Method or Drought of first casting out your Lands, and plotting them into such Plots and Formes, so that where there is, or may be a Capacity of bringing thy Land under any good Streame, or Land-flood, be sure to cast it for Meadowings, having drawne one Master Levell floating course throughout thy whole Plot of Enclosure, which may also serve as thy first division; and to carry thy water along also to flow thy Meadowing thou shalt make all under it fit, that thou mayst not lose that Opportunity *now at hand* (which after divisions made cannot be had) of so great an Improvement, at so small a Rate; *now* at thy first contrivance thou mayst cast it under, and then cast out all thy Lands, according to the most sutablenesse of them, all to such Improvements, they lye under, and then to the Conveniences of each mans Right and Interest, and the greatest Advancement upon these Inclosures will be two.

Two Advan-
tages of this
Enclosure.

The first giving all Ingenuous men a Capacity to Plough, and Till, what they please thereof, which will raise a double, or treble Advantage, as to Grasing, and a Tenfold greater Advance as to Common of Pasture (which to some is worth nothing at all, because of their remotenesse, to others but a little,

tle, because of some great Oppressor, nearly and neatly seated upon the Commons, that drives others from it) and to none what it may be, as by right, when he may use all his Parts, Purse, and Experiences of Husbandry at his owne pleasure by improving it; And it is and never was otherwise seene, that men would ever joyne together in one body, to use their utmost to improve any of these Lands to the best Advantage, for though Common of Pasture is mens owne Inheritance, and every man not knowing his Lot, or Portion, how rarely wil they ever joyne or agree therein, although they are all perswaded of a probable great Advancement, yet one sayes, I shal not have so great an Advantage by it as my Neighbour; and another he beleeyes it will be good for present, but it wil not last; and another sayes, he hath no reason to beare so great a proportion of Charge, though he have as much Land, yet he's not capable of so great an Improvement; and a thousand Excuses and Cavels there must be, which though a Wise man may easily answer, yet never convince their Judgements, for it hath ever been so since their dayes, and their Fore-fathers were as wise as they, and they cannot be satisfied, let it alone and we'll take the present profit it yeelds; and there is an end of their Improvement.

*Cavels against
Improvement,
in Common.*

And here ile give you a President, which though it might as to the nature of it, have come in more seasonably in the discourse about common Field Land, yet here it is very naturall also, both as to the end I bring it for, and for the discovering a Capacity of vast Improvement, both upon it scilicet,
N and

and upon all other Lands of that nature.

A President of
great store of
lost Land under
Puddle
capable of
Improvement.

There are many hundreds if not thousands of Acres of Lands neare *Dunstable*, in a Valley under *Puddle*, or *Chalke Hills*, just under the bottome of the Hills (an eminent place knowne well to most) which I beleeeve runs both wayes farre, but on both sides the Rode-way to *Chester* and *Coventry* the Land lyeth, with a little Brooke, or streame running through it; All which Lands if you observe them above halfe the yeare lyeth full of water, if not under water, and I beleeeve is worth about five shillings an Acre, I am sure abundance of it is not worth three shillings, and some not worth two shillings an Acre, which if my Judgement faile not, may easily be drained, and laid so sound and wholesome, which were but that done according to the second Piece of Improvement, and the directions given in the seventh Chapter, treating of drayning, I dare uphold one Acre would be as good as divers now are in many parts of it, but then should you also by the benefit of that Brooke, and all these gallant rich Land-floods, that issue from the Hills on one hand, and from the Vale especially on the other hand, take the advantage and benefit of them also, and according to the first Piece Improve it by Floating, which may very feazibly be done according to the direction of the fourth, fifth, and sixth Chapter, whereby it may be Improved to its utmost. I verily beleeeve it would not only make good the utmost extent of my Improvement promised, but wil afford Hay sufficient to supply all those Barren partr, and that as good againe, if not thrice so good as now it is. I instance

this

this place the rather, because it is so obvious to every one, and this offer of Improvement was once tendred to them, who could not agree therein, but made many of the said Objections aforesaid, although it was offered them to be done at anothers cost and charge, and they to have run no Hazzard, but to have come into so great an Improvement paying the cost and charges, if the designe had taken after they had seene it wrought unto their hands: but there are a thousand, and ten thousand Acres up and downe the Kingdome, some yeelds more, and others lesse hopes of vast Advancement, and great enough, if men would put them upon triall, and great and vast quantities of Land in many Forests of this Kingdome, and other Heaths, Wasts, Moores, and other Commons, subject to the greatest Improvements at little charge.

An offer made
once to have
made good
the same.

2 Which will be by letting in another as great Advantage, which is to bring all other Lands into a capacity to Improve the same, by all other sorts & ways as the Land is naturall unto, to improve it by; as by Lime, and Marle, Mucke, and Soyle, Land, and Earth, Chalke, and Mud, &c. With many other wayes, all which men wil infinitely more pursue when they know their owne, then while it lyes at randome, which wil more naturally fall into the next Piece and there shal be particularly handled, whereby great store of Corne of all sorts (where now nor one Grain is Tilled) may be gained, which raiseth Straw, Stover, and Fodder, abundantly for raising Soyle, Dung, or Manure. An old, and the onely infallible, and undeniable meane to advance any Land whatsoever,

2 Advantage
of this Enclo-
sure.

Along the Ri-
ver Thames
both wayes
much barren
Land.

ever. I shall digresse a little, of which all men talke, but few practise to purpose, else what meanes all these barren Lands (though not Common Lands) lying within some two Miles, other three, foure, five, or six of the great City (where all men are said to be the most gallant Husbands of the Kingdome) to lye unimproved, all Heath, or Ling, or Broome, not worth three, foure, or five shillings an Acres; surely were there either Soyle to be had at *London* for Money, as indeed there is enough to be had without; nay in many parts men may have Money to carry it away, else were there a River to Barge it up and downe upon, men would improve it to great worth, Many hundred, if not thousand Acres in *Essex*, *Kent*, and *Surrey* are neglected; certainly Land is worth Money, and Money enough too (if I be not mistaken) about *London*; And then by these meanes when the same shall be laid downe to Graze, observing but the particular Directions aforesaid, it shall feed, and fat, where before it kept but store Cattell alive; much more might herein be said, but i'll say no more, for if the Presidenting these Experiences will not satisfie and abash the Oppressor, I am sure I shall shame my selfe by my Prolixity, and therefore i'll stop the Black-more no more, untill he manifest his offence at what I have said, by way of returne in the same kinde, but if he delight more in Rime then Reason or Experience, Take Mr. *Tusser* speaking in his Husbandry of the great Advantages betwixt Enclosure, and the Champion Countreies, and I will give it thee in his owne Phrase, which I conceive will please thee better.

By

By M^r TISSER 106 Pag. Chap. 52.

A comparifon betweene Champion-Coun-
trei and Inclofure.

THe Countrey Inclofed I prayfe,
The other delighteth not me,
For nothing the Wealth it doth rayfe
To fuch as Inferiour be.

How both of them partly I know,
Here fomething I mind to fhew,
Their Swineheard that keepeth the Hog,
Their Neatheard with Curre and with Horne,
Their Shepheard with Whiftle and Dog,
Be fence to the Meadowes and Corne.

Their Horfe being ty'd on a Balke,
Is readie with Thiefe for to walke
Where all things in common doe ref.

Corne-field with the Pafture and Mead,
Though common yee doe as the ref,^a

Yet what doth it ftand you in ftand?
Their Commons as Commoners ufe,
For otherwife fhalt thou not chufe.

What Laire much better then there?

Or cheaper (thereon to doe well?

What Drudgery more any where?

Leffe good therefore, where can yee tell?

What gotten by Summer is feene,

In Winter is eaten up cleane,

Example by Liecefterfhire,

What Soyle can be better then that;

For any thing heart can desire ?

And yet they want yee see what,
Mast, Covert, close, Pasture, and Wood,
And other things needfull is good,
All those doe Inclosure bring,

Experience teacheth no lesse,
I speake not to bo st of the thing,
But onely a truth to expresse.

Example (if doubt you doe make)
Of Suffolke and Essex goe take,
More plentie of Mutton and Beefe,
Corne, Butter, and Cheese of the best,
More Wealth any where to be brieft,

More people more handsome and prest
Where find yee ? Goe search any Coast,

Then there where Inclosure is most,
More worke for the labouring-man,
As well in the Towne as the Field,
Or thereof devise (if you can)

More profit what Countrey doth yeeld.
More seldome where see yee the Poore
Goe begging from doore to doore,
In Nortolke behold the dispaire
Of Tillage, too much to be borne

By Drovers, from Faire unto Faire,
And other destroying the Corne,
By Custome, and Covetous Pates,
By Gaps, and opening of Gates.

What speake I of Commoners by,
With d'awing all after a Line,
So noying the Corne as it lye,

With Cattell, with Coneyes and Swine ?

When thou hast bestowed the cost,
 Looke halfe of the same to be lost,
 The flocks of the Lords of the Soyle
 Doe yearely the Winter Corne worng,
 The same in a manner they spoyle,
 With feeding so low and so long.
 And therefore that Champion Field
 Doth seldome good Winter Corne yeeld.
 By Cambridge a Towne I doe know,
 Where many good husbands doe dwell,
 Whose losses by Lossells it doth shew,
 More here then is needfull to tell.
 Determine at Court which they shall,
 Performed is nothing at all,
 The Champion robbeth at night,
 And proleth and filcheth by day,
 Himselfe and his Beasts out of sight,
 Both spoyleth and maketh away,
 Not onely thy Grasse, but thy Corne,
 Both after, and y^er it be shorne,
 Pease bolt with thy Pease he will have,
 His hensbold to feed and his Hog,
 Now stealeth he, now will he crave,
 And now will he cozen and cog.
 In Bridewell a number be stript,
 Lesse worthie then Thiese to be whipt,
 Lord if you doe take them what stirres?
 How hold they together like Burres?
 For Commons these Commoners cry,
 Inclosing they may not abide,
 Tet some be not able to buy
 A Cow with a Calfe by her side.

105 p. 160.

Not

Englands Improvement : or,

Nor lay not to live by their worke,
 But Theevishly loyter and lurke,
 The Lord of the Towne is too Blame
 For these, and for many faults more,
 For that he doth know of the same,
 Yet lets them unpunished goe.
 Such Lords ill Example doe give,
 Where Varlets and Drabs so may live,
 What foot-paths are made, and how broad?
 Annoyance too much to be borne,
 With Horse and with Cattell, what road
 Is made through every mans Corne?
 Where Champions ruleth the roost,
 There dayly disorder is most,
 There Sheepe when they drive to wash,
 How carelesse their Sheepe they doe guide,
 The Farmer they leave in the last,
 With losses on every side.
 Though any mans Corne they doe bite,
 They will not allow him a mite,
 What Hunting and Hawking is there,
 Corne looking for Scickle at hand,
 Alls lawlesse to doe without feare,
 How yearely together they band?
 More harme to another will doe,
 Then they would be done so unto,
 More profit is quieter found,
 Where Pastures in severall be,
 Of one silly Acre of ground,
 Then Champion maketh of three.
 Again, what a joy is it knowne,
 When men may be bold with their owne?

The tone is commended for graine,
 Yet bread made of Beanes they doe eate,
 The tother for one loafe hath Twaine,
 Of Meslin, of Rye, and of Wheat.
 The Champion liveth full bare,
 When Wood-land full merrie doe fare.
 Tone giveth his Corne in a Dearth,
 To Horse, Sheepe and Hogs e'ry day,
 The tother give Cattell warme barth,
 And feeds them with straw and with Hay.
 Corne spent of the tone so in vaine,
 The tother doth sell to his gaine:
 Tone bare-foot, and ragged doth goe,
 And readie in Winter to starve,
 When tother yee see doe not so,
 But have what is needfull to serve.
 Tone paine in a Cottage doth take,
 When tother trim Bower doth make,
 Tone layeth for Turfe and for Sedge,
 And hath his wonderfull suit,
 When tother in every Hedge
 Hath plenty of Fuell and Fruit.
 Evill twentie times worse then these,
 Inclosure quickly would ease.
 In Wood-land the Poore men that have
 Scarce fully two Acres of Land,
 More merrily live and doe save,
 Then tother with twentie in hand.
 Tet pay they as much for the two,
 As tother for twentie must doe.
 The labourer coming from thence,
 In Wood-land to worke any where,

*I warrant you goeth not hence
 To worke any more againe there.
 If this same be true (as it is)
 Why gather they nothing of this ?
 The Poore at Inclosure doe grudge,
 Because of abuses that fall,
 Lest some man should have too much,
 And some againe nothing at all;
 If order might therein be found,
 What were to the severall ground.*

Studie therefore the management of all thy estate to the best publique Advantage, Husbandrie all thy Lands to the best & greatest benefit of the Commonwealth, for in this way of Improvement thou canst not possibly intending the publique good, but necessarily the greatest good must follow to Poore, thy selfe and family.

Order therefore thy common Arable Lands, as they also may rayse and produce most plentie to all Concernments, and all Waits, Forrests, and Heaths, that they may produce their great advantage, which being so old and restie, will yeeld forth Corn in great abundance, and after Pasture to double profit. Be not peevish, nor let not passion nor old customed corrupted will prevaile against these Advantages, for he that Improves not all his Land to this end, the rayfing plentie, and relieving the miserable, answereth not the ends, wherefore thy selfe and all thy Lands were given, as before I hinted. I have no more to say to thee, but to intreat thee to remember that passage of the Wise Man (*viz.*) *The thoughts of the diligent bring abundance;* And if thou wilt be yet unsatisfied, be so still.

CHAP.

The Fourth Piece is a discovery of such Simples, and Ingredients, to be compounded with the Earth, with the Nature, and use of them, In Application whereof makes good the Improvement promised, and Meliorateth the Earth to all Intents and Purposes.

CH A P. XVII.

sheweth how in Tillage of thy Land, thou mayst Improve it best, with an Addition of an Seyle, or Manure by far, then upon the Turfe in Grazing, and in Particurlar Treateth of
[Liming.]

ALl Vp-Lands whatsoever, especially all sound and wholsome Lands, will admit of severall waies of Improvement, as,
In generall all course Barren Heaths, Lingy Broomy Lands, be it of the lowest and meanest value, is futeable for Improvement, by liming, and by all the Subsequent Compositions all old, Resty Land, that hath not bin Tilled of late, although it be course of it owne nature, and yeeld little Fruit, yet by Ploughing according to former directions, all Advantages observed for three or foure Crops, which I feare not but the heart and strength thereof will beare it out, without Prejudice; I have knowe Six or or Seven Crops taken, of Land not worth above five shillings or six shillings an Acre,

Improvement
of up-Land
severall waies.

Preident of
Ploughing
Wood-Land
Land.

A five hundred
year old piece
of Wood-
Land
till'd every
fifth yeare.

Manures or
Materials to
enrich Land.

Using of
Land.

and it very little the worse, as generally all the Wood-Lands are apt to run to Mosse, and Fearn, Goffe, and Broome, and to be so extremely overrun therewith, that it beares nothing else, and if they be not till'd according to that Ancient Principle all Husbandmen retaine, every ten or fifteen yeares they will run into these Extreames so far as that they will be of little use, so all other Lands of a better nature subject to these Extreames, no better way can possibly be then *Moderate Tillage*, according to the former rules Prescribed.

And in thy Tillage are these speciall Opportunities to Improve it, either by Liming, Marling, Sanding, Earthing, Mudding, Snayle-colding, Mucking, Chalking, Pidgcons-Dung, Hens-Dung, Hoggs-Dung, or by any other meanes, as some by Rags, some by course Wooll, by Pitch Markes, and Tarry Stuff, any Oyly Stuff, and many things more, yea indeed any thing almost that hath any Liquidnesse, Foulnesse, or good Moysture in it, is very naturall Inrichment to almost any sort of Land, all which as to all sorts of Land, they are of an exceeding Meliorating nature, and of most of these more particularly.

And first for Liming, it is of most Excellent use, yea so great that whole Countries, and many Counties that were naturally as Barren, as any in this Kingdome, and had formerly (within lesse then halfe an Age) supply with Corne out of the Field-on Corne Country, and now is and long hath beene ready to supply them, and doth and hath brought their Land into such a Posture, for bearing all sorts of

of Corne, that upon Land not worth above one or two shillings an Acre, they will raise (well Husbanded with LIME) as good wheat, Barley, and White and Gray Pease, as *England* yeelds, yea they will take a parcell of Land from off a Lingy Heath or Common, not worth the having, nay many will not have it to Husbandry it, and will raise most gallant Corne, that naturally is so Barren, worth six pound an Acre.

And though some object it is good for the Father, but bad for the Sonne.

Ob.

Answer, so are all Extreames whatsoever, but if that after Liming, men would but study Moderation in their Tillage, and not (because the Land yeelds such abundance of Corne) till it so long as it will carry Corne, No nor so long as it wil carry good Corn, But if men would after good Liming take three four or five Crops, and then lay downe their Lands, to Graze, it would not be the least prejudice; or if upon the laying of it downe, men would but Indifferently Manure it; or else upon the last Crop you intend to Sow, Dung it well before Sowing, and lay it downe upon the Rye or Wheat Stubble, It would Produce a sweet Turfe, and I am confident prove excellent Pasture, as good againe as it was before, but if after it is Layd downe you would Manure it once againe; A little Manure now will produce more fruit then as much more upon the old Soard, it would be warrished for ever; Many men have had ten Crops of gallant Corne after one Substantiall Liming, some more upon very reasonable Land of about six shillings eight pence an Acre, some Land worth a little more, but more Land lesse worth.

Ans.

Pre fidents for Liming.

worth, and some upon Land not worth above one or two shillings an Acre, have got in many gallant Crops upon a Liming, as aforesaid; some men have had and received so much profit upon their Lands upon once Liming, as hath paid the purchase of their Lands. I my self had great Advance thereby, yet I lived twenty miles from Lime, and fetched it so farre by Wagon to lay upon my Lands; and so not Capable to make like Advantage as other Borderers: The Land natural and suitable for Lime, is your light sandy Land, and mixted sound Earth, so is also your Gravell, but not so good, and your wet and cold Gravell is the worst, except your cold hungry Clay, which is worst of all.

The Land
most naturall
for Lime.

The nature of
Lime.

For your Lime after it is once Slacked, and Mel-
ted, it is of a very cold Nature; for it will sadden
your Land exceedingly, which is contrary to the Op-
inion of most Writers, who held it of a very hot na-
ture, which is true whilst in the Stone, and Unslack-
ed, but afterwards is Colder and Sadder then any
Manure, yea it will turne your Light Land into such
a Capacity as it will beare exceeding good Lammes
Wheate or mixted Corne.

How much
will Lime an
Acre.

As I remember about twelve or fourteen quarter
of Lime will very well Lime an Acre, you may also
over-Lime it, as well as under-Lime it; Also a mix-
ture of Lime, Manure, and Soyle together, is very
excellent, especially for a few Crops, and so lay
downe to Graze I conceive is best; but by any means
Till not long, for I say its possible the Land may
yeeld Corne being so exceedingly in Tillage, and so
well wrought, as long almost as any Earth is left in it.

I have

I have seene many parts Tilled so long as there hath been little left but small Stones and Peebles; A *mad* *Custom*, fly from it, your Lime will sinke downe-wards exceedingly, use all meanes possible to keep it as much aloft as you can, else you lose it, and the benefit of it.

CHAP. XVIII.

*Sheweth the nature, use, and benefit of Marle, and gi-
veth a President of the Improvement
made by it.*



Marle is also a very gallant thing, I can say much for it, farre more then I resolve to speak to, because others have spoke much therof, though little to my especiall purposes; It is commended Marle. of all men, and very highly almost by every Writer, that sayes any thing in poynt of Husbandry; therefore I'll say but little, only acquaint you with its nature, and an Experiment made of it, and the severall Lands it is most naturall for Advancement, or melioration to a little quicken the Practice where it is found, and the Search for it where it is not yet discovered.

And for the nature of it, it is also of a colder nature, because it saddens the Land exceedingly, and very heavie it is, and will goe downewards also, but being so much of substance cannot easily bury so soone as Lime will, and the description of it is not so much in Colour (as some say) as in the Purity, Nature of
Marle. and

Signes of good
Marle de-
scribed.

Slipperinelle
no Infallible
figue.

A Marling
Experiment.

and uncompoundednesse of it, for in my Opinion be the Colour what it wil, if it be pure of it selfe that it wil breake into bittes like a Die, or but smooth like Lead, without any Composition of Sand or Gravel; And some others of it if it wil slack like Slate-stones, and then if it wil purely slack, after a Showre of Raine, question not the fruitfulnessse of it. Tis possible some Countries may yeeld severall Colours of Marle, as it is affirmed of *Kent*, wherein is found both Yellow, Gray, Blew, and Red, and the Red is said to be the worst there, which I wil not here dispute, because it never fell under mine owne Experience in that Country; yet I wil say it holds not every where, indeed the Blew and Gray are very Excellent, and so also is the Red no lesse; And whereas the common signe is said to be Slipperinelle, or Grealinelle, in which I wil not contend, but only I say there is some as good Marle as is most this day in *England*, which is not so, but as it lyeth in the Mine is pure, dry, short, and if you water it, you shall finde it in Slipperinelle differ little from common Clayes; The only signe, but the purest and truest signe as aforesaid, is the uncompoundednesse of it, and if it slack also immediatly after a showre, and shortly after turne to dust after it is thoroughly dry againe; And doth not congeale and conglutinate like to tough Clay, but dissolve, feare not the Operation, Adventure the Experimenting of it, the fa it wil be answerable to thy hopes.

And now give me leave to tell thee a true Relation of one Experiment of my owne (because I speake but little but my owne Experiences) upon

an hard Inclosed Wood-land Farme I rented, having some Land also in Common, amongst the rest I had about fiftene or sixteene little short Lands, or Butts lay altogether in the Common Field; All which said Lands were so Gravelly of nature that there was but about two Inches thicknesse of Earth before you come to as perfect Gravell as any High-way, yea so exceeding herein, that it in many places turned to Sinder (like that the Smith casts forth of his fire as the corruption of his Iron, Fire and Coales congealed) and also so hungry and barren of nature, that before I converted it to Tillage, little or nothing was made of it; And to Graze it was not worth above two shillings an Acre yet it was Resty and old Turfe, and had laine long, may be fiftene or twenty yeeres; And resolving to make an Experiment I searched for Marle and found it, where none had ever been found in mans memory, nor within many Miles of it; and in an old strong Clay Poole I conceived it lye, the which Poole I was forced to cleanse, being ful of Mud, that so I might make the better and greater fall of Marle at last, and my Marle was perfect Red, differing in nothing from Clay in colour, but in the breaking into bitts and ends like Dies, not slippery, as was discernable from Clay.

And because I would make an undeceiveable Experiment of it (which ever was my greatest Arrogancie) I carried forth that Mud also to my Land, and laid it upon two or three Lands, as thick againe as men use to lay on Soyle or Dung; I also Mucked with the Cart two more exceeding well, and as I

Some Mucked,
ed. some
Foulded, some
Marled.

One no cost
at all.

remember Fold Mucked two more; Also I Marled three or foure as thick againe as I Mudded the other; And one I and I neither Mucked, Mudded, Foulded, or Marled, nor laid any cost upon it at all, yet Ploughed them all alike, and brought them into good Tillage, and Sowed them as I remember with Wheat, and Rye mixed; and for the first yeare I reaped very good Corne upon my Cart-mucked Land, and Fold Mucked the best of all, the best upon my Mudded Land the next, and upon my Marled Land reasonable good, not so good as the afore-said sorts yeelded (because Marle yeelds not forth his utmost strength the first yeare. And upon that I laid nothing, I reaped nothing, no not so much as Straw, although I gave it the same Seed, and the same Tillage as the afore-said Lands. Whereby you may perceive the goodnesse of the Land, which is bad enough indeed when it will beare no Corne at all, for very little Land in *England* that is old and Resty, and in good Tillage, but will beare some.

A double Ex-
perimēt.

The next yeare I Sowed Barley upon all sorts of these Lands, and upon my Marled Land was most gallant Corne, and so was my Mudded Land, my Mucked Land was the worst by farre, the Muck decaying, and upon that I Soyled not; I Sowed the second yeare with Oates, and reaped nothing againe that yeare also; Then afterward I Marled that which before I had Mucked, and that which had not Soyle laid upon it, and brought forth nothing the two yeares before, brought forth as gallant Corne as *England* yeelded; And after three or foure Crops my Mud decayed also, and that I Marled againe, and had

had the same Fruit as aforesaid; and for my Marled Land that I kept in Tillage nine yeares, without any other addition of any Compact or Soyle at all, and had as goodly Corne as grew, and then I left the Land, and ever since with some small addition of Fould or Manure, as they doe the rest of their Lands; that out-strips all the rest, and is discernable from all the Lands to this day; herein observe how it saddens Land, this was Rye Land most naturally, but it turned to Wheat, Barley, and Pease; and as it is thus excellent for Corne, so it is also very fruitfull and enriching to Grasse-land, provided you take heed of Extreames, which most men are subject to run into, which is not to Till it forth of heart, for to Till it forth of heart is just as if you worke an Oxe off his leggs, a Horse off his stomach, or a Man off his strength, and then put them all to worke for Wagers with those that are in plight and strength; Try what service one of them will doe you, not a third part of that service they did before; Nor twice or thrice to Marle together I hold not proper, but when you resolve to lay downe your Land to Graze, be sure at the last Crop you intend to take (which may be the fourth, fifth, or sixth after Marling) then Manure thy Land well with Dung, which will so open, lighten, and loosen thy Land (for the lesse binding, and the more light, loose, and open, the more fruitfull) that it will produce a gallant Clovery, and white Hunnie-suck'le Grasse, and Graze fruitfully; and then if as aforesaid, the first yeare after thou hast laid it downe upon the Wheat or mixt Corne-stubble, thou wouldest run it over againe with

Marle saddens
Land ex-
ceedingly.

Extreames in
Marling ac-
proved.

How to lay
downe Land
to graze after
Marling.

Dung it would pay thee treble, I cannot forbear inculcating these two (because I see it is so little practised in any part of the Kingdome) and I know it to be so wonderfull, Advantagious, untill thou pursue the practice of them, if possible never lay downethy Land to Graze but thus, Let not thy Gaine or Profit of a good Crop or two, hinder thee often fold more, and dishonour thy Land, Prejudice thy Posteritie, and desome thy Husbandry.

The Prime
Principall in
Husbandry.

Oh that this gallant Principle of Improvement of all Lands to their utmost worth, was naturally planted in all mens Breasts, to drive on all Designes for the Common good, so to Plough all thy Lands, as to make thy Lands Fittest and Richest to Graze, and then to Plough againe, when thy Land decays in Grasing, and thy Ploughing shall far out profit thy Grasing, I am confident a man might so Husband the matter, as neither of these should hinder eath others Fuitfulnesse, but both helpe on each others Advancement.

Lands most
naturall for
Marle


Now the Lands upon which Marle yeeld great Increase, is upon your higher Sandy Land mixed or Gravelly, to whom it is as naturall, and nourishing as Bread to mans nature, and will doe well upon either of these, though somewhat mixed with Clay, but strong Clay in my opinion is every unfutable; But an exact tryall I never made thereof, therefore am not Premptory, and although many men are of opinion that it can have little Operation upon Wet, Cold, Moyst Land, I say so, if there be not a possibility to lay it Sound, and Wholsoine, but that I beleeve thou mayst doe most Land by Ploughing of it

up

up and Raifing of it, as high as thy Land will beare it, and then a good Drayne or Master Furrow, if it will ferve; if not, a deeper Drayning Trench will for Wet, and too much Cold, and Moyfture offend all Come and Graffe alfo wherefoever, as well as Marle, but thus done Marle will yeeld great ftore of Come upon this Land alfo out of queftion.

CHAP. XIX.

sheweth the ufefulneffe of Land and other Soyles out of the Seas and Rivers, Lands alfo are great Inrichments.

S for Sands nature, I conceive it warme of nature, and yet that is not the caufe of its Fruitfulneffe, for then would all Sands have the like Operation and vertue in them, but of our inland Sands efpecially thefe which are naturally the Surface of the Earth, or elfe lyeth by Mines in Hills, and many other parts of the Kingdom, I conceive little Fruitfulneffe at all, however I challenge not Immunity herein from being deceived; I may be, for I have made no tryall at all therein, and therefore what it may doe upon a contrary natured Land I know not, if any have found benefit I defire to learne it, for Reason bath fometime deceived me, and fo may others, but Experience never fhall.

Sand.

Of no worth
or ufe at all.Sands for
floods good.

But as for your Sands brought forth by the Violence of ftrong Land-floods, and caft upon Hills and Shelves in many Meadowes and other places in them

What Lands
are naturall
for Sands,

is Fruit and Vertue, and I question not but the Application of them, either to Corne or Graze, will produce much Fertilite; especially being seasonably applied to such Lands as are most different from the nature of it selfe; for whatever causeth Barrenesse, be sure to provide a Soyle that will stand in constant opposition to it, and so though one waste another, and both are weakned, yet the Earth is thereby bettered, as here the Sand is dry and warme, and something inclining to Saltisbnesse, the Land I conceive best for this Soyle, is moyst and cold, one while Heat and Cold, Dry and Moyst, contest together, the Earth steales from both, and is much Advanced thereby.

For in all Soyles and sorts of Earth, there is a Combustible and an Incombustible Nature; Each Wrestling with other, and the more you can occasion Quarrells and Contention by these, that is, the more you adde to that which is predominant, and so allay the distemper in the end, the more gaineth the Earth thereby; For I suppose there is a kind of contrarietie in Nature, it was ever so from the fall, and ever will till all be swallowed up again in one.

Best Sand of
all.

But there is another sort of Land, and that is the richest of all, and that is your Sand upon the Sea Coasts, and in the Creekes thereof, which is very rich, yet in some parts it is somewhat richer then others, as I conceive, for this Reason, because all Lands that be bordering upon the Sea Coasts might then be Improved by them, but in many and most parts of the Kingdome the use of it is neglected, and I dare not have so uncharitable opinion of my Nation, that
they

they would neglect so great and facile an Advantage; In *Devonshire*, upon those Coasts it is very rich, and upon the Coasts of *Cornwall* also, and so all *Walesward* borders, so rich, as that they carry it many miles on Horse-back unto their Lands, and make such vast Improvements, as to rayling Corne and Grasse also, as is incredulous: Now, were it on the Northerne, Easterne, or Westerne Coasts, as rich as it is upon the Southerne Coasts, as it may be for any contrarie experience I have had, I could not believe the people to be so Dronish as they are in some parts thereof, but that they would Draine out that Sweetnesse to their Lands, as would cost little or nothing but their Labour; However I must absolutely say, there must needs be great heart and fruitfulness in these Lands also, because the Richnesse of the Lands is from the fat or filth the Sea doth gather in by all Land-floods and Streames that bring it from the Lands, and also what the Tide fetches in dayly from the Shores, and from that fat and brackish nature in it selfe, and from the Fish and other creatures, and thousands of other matters that putrifie in the Sea, all which the waters Casts to Shore, and purgeth forth of it selfe, and leaves in the Sands thereof, while it selfe is cleare and pure.

What causeth
so much rich-
nesse in the
Sea Sands.

And now being discoursing thereof, give me leave to let you know the Vertue and Excellencie the Sea may yeeld, further toward the Enriching of the Land, as from Fish of any sort, which is so fruitfull for the Land, that in many parts of the world they Dung their Lands therewith, but here with us, it yeelding more Advantage for Food to the reliefe of

The Seas
fruitfulness
by Fish.

mans

mans nature then unto the Earth ; I'll say no more, unlessie any Capacitie fall in of the dead purrified Fish, which is of no other use then to this purpose; A good Advantage might be made unto the Land thereof, as I said, before any Liquid Brackish-fat, Greasy-matter, and any thing that comes from, or is the fleshy matter of the creature, whether it be by Sea or Land, hath a secret operation in it to the Earths fruitfulness; Yea, the very Urine of man is very excellent, and of all Beasts very fruitfull.

Urine fruitfull.

Snayle Cod.

The richness
of *Snayle Cod.*

There is yet another Opportunitie, out of many of your great Rivers in this Kingdome, and is from a Mudde or Sludg, that lyeth frequently in deepe Rivers which is very soft, full of Eyes and Wrinkles, and little Shells, which is very Rich, yea so rich, that in some parts of the Kingdome many men get gallant Livings onely by taking it up out of the Rivers, and selling it againe by the Load; One sort whereof they sell for one shilling two pence *per Load*, And another sort they sell for two shillings foure pence a Load at the River side, which men fetch twenty Miles an end for the Inriching of their Land for Corne and Grass; One Load going as farre as three Load of the best Horse or Cow-dung that can be made; They Call it *Snayle-Cod*, and it hath in it many Snayles and Shells, which is conceived occasioneth the Fatnesse of it; The great Experience of this Piece, is made upon that part of the River *Thames*, which runnes from *Oxford* and *Reading* downe to *Brainford*, and if my Information faile not (which I conceive I have from as good a hand, a Gentleman full of great Experiences in Husbandrie Improve-

ments;

ments; as hath not many Fellowes) The Lord Cot-
tington drawing part of the River through his Parke
at Hanworth, hath cut in the same River many
Out-lets or Ponds, somewhat deeper then the Ri-
ver, on purpose to receive the same, from out of
which is usually taken up great store of Mud for the
Advance of the Upper Lands, but whether this be
that richest Snayle-Codd I cannot say, but beleeve
it is very good, but upwards as high as *Cole-Brook* in
that River it lyeth plentifully, all which not falling
under mine owne Experience I can say little more
unto for present, neither for the seasons of applying
it unto the Land, nor the manner of working the
Land to it I dare not prescribe.

Onely hence I conclude, there may as well be
the same opportunity in most Rivers in the King-
dome, which is a most unutterable Advantage; But
I can say there is in most if not in all Rivers a very
good Rich Mud, of great fruitfulness, which were
it more sought after would worke on more Experi-
ments, and produce Advantage unexpected, it cost-
ing nothing but labour getting, nor prejudiceth any,
but profit to all, by clearing the Rivers, and great
worth and vertue it must needs have in it, being the
Soyle of the Pastures, and Fields, common Streets,
Wayes, Yards, and Dung-hils; All collected by the
Floud, and drawne thither, where it concentrates into
Shelves, and Mines as I may so call it, and remains for
ever as an undiscovered Advantage, where no use is
made of it; but hereof more, if God give opportu-
nity to the Author of Experimenting both this, and
others of the same nature to the utmost Advance-

Where the
right Snayle
is to be got.
The chiefe
River where-
in this Mud
lyeth comes
fromward Va-
bridge by *Cole-
brook*, and is
not the *Thames*
as I can yet
discover, ha-
ving made a
Journey thi-
ther since I
wrote the
aforesaid dis-
course.

Mud in Ri-
vers of great
use.

ment of it otherwise, and in the meane while inquire it out thy selfe.

CHAP. XX.

Treateth of the use, and nature of Chalke, Mud of Pools, Pidgeons and Swines Dung, and other Soyles and Manures therein contained.

Bacon's *History*, p. 123



Chalke.

For Chalke, Sir Francis Bacon affirmes it to be of an over-heating nature to the Land, and is best for Cold and Moist Land, but as it appears to me in *Hartfordshire*, and other parts thereabout, there are great Improvements to be made upon Barren, Gravelly, Flinty Lands, and it hath great fruitfulness in it, but not having false under my owne Experience I dare affirme little therein, onely advise any that have opportunity therein to be well resolved of the fruitfulness of the said Chalke, or of the nature of the said Lands, for there is much Chalke, and great Mines thereof, that is of so churlish a binding nature, that it will so sodder and binde, and hold the Water upon the top of the Earth so long till it destroy the Come, nor worke a sterility in the Earth, that neither Come or Ground shall yeeld but little fruit; but there is Chalke in thousand places of great fruitfulness for Improvement.

Chalk mixed
with certaine.

And I also conceive that Chalke, Earth, and Manure, mixed together, makes an Admirable, sure, and naturall fruitfull composition for almost any sort of

of Lands, and is a very Excellent, Unfallible Remedy against Barrenesse, and raiseth Corne in abundance, and enricheth it also for Grazing when you lay it downe.

Also the Mud of old standing Pooles and Ditches, the shovelling of Streets, and Yards, and Highways, the Over-swarthes of Common Lanes, or of Commons neare Hedges, is very good both of it selfe, and compounded with other Soyle, Manure, Mud, or Straw; And very much account made thereof in some Countries; nay more then this of Manure that is made of Horse, or Cow, for some sorts of Land, and some sorts of Corne, which I conceive is for Lands very Flinty, Stony, and Gravelly, or a little mixed with Clay amongst them; as also for Wheat and Barley it is very naturall, and is of constant use and great esteeme in *Hartfordshire, Essex, Suffex*, and divers Countries thereabout, and also to great Advantage being put in Execution in most of the Counties in this Kingdome, if Ingenuity was of as good esteeme amongst us all, as is A base Outlandish fashion, for no sooner can that be brought into any part of the Kingdome, but it will be dispersed presently into all the parts thereof; but such as these, that are Advantage to all, and vastly profitable to the Practitioner and Common-wealth, are slighted and little practised.

Earth of a saltish nature is fruitfull, especially all such Earth as lyes dry, covered with Hovells, or Houses, of which you make Salt-Peeter, is rich for Land.

There are many other gallant Soyles or Manure,

Mud.

Ingenuity not of such esteeme as a base Outlandish fashion.

Earth covered very rich.

Pidgeons and
Poultry dung.

as your Pidgeons dung, a load whereof is more worth then twenty shillings in many parts, your Hens and Poultry dung, that live of Corne is very excellent, these being of a very hot, or warme and brackish nature are a very Excellent Soyle for a cold moist natured Land, Two load hereof will very richly Manure an Acre; so is all Dung, the more it is raised from Corne or richer matter, the richer it selfe is usually by farre; as where Horses are highly Corned, the richer is the dung then those onely kept with Hay.

Swines dung
most excellent
Soyle.

There is another sort of Soyle, and that is Swines dung, by most men accounted the worst of all, nay not worth preserving, out of an old received Tradition taken up by most men, upon what ground I know not, and so generally disliked of almost every one, and therefore they will not Experiment it, and much an end no use at all is made thereof, possibly it came from *Scotland*, who knew they but the Excellency thereof, they would love the flesh the better for the dung sake.

Which to me is very irrationall, that an *English* man who loves Swines flesh so well, that more Account and use is made of all the parts of him rather then of the Biefe or Sheep; yea his very blood and guts are highly prized, and yet the Soyle of him so much undervalued.

The great account
of swines
dung.

This Dung is very rich for Corne or Grasse or any Land, yea of such Account to many Ingenious Husbands, that they preferre it above any ordinary Manure whatso ever, therefore they make the Hogg yards most compleate with an high pale paved well with

with Pibble or Gravell in the bottome, where they set their Troughs partly in, and some part without the Pale, into which they put their meat, but the most neatest Husbands, indeed plant their Trough without their Pale or Hogyard, all along by the side of it, and for every Hog they have a hole cut, the just Proportion of his Head and Neck, and out thence, he eats his meat forth of the Trough very cleanly and sweet, they keepe the Trough also very cleane, they have their house for lodging by it Yellie with dry Straw alway for him to lye in, and their cornish Muskings they cast into the great Yard, and all Garbidge, and all Leaves, out of Gardens, and all Muskings forth of their Barnes, and of their Courts, and Yards, and great store of Straw or Weeds, and Fearn, or any thing for the Swine to root amongst, to make all the Dung they can, and here they keepe their Swine the yeare round, never suffering them to goe one day abroad, and here your dayry Husbands or Houfwives, will feed them as fat as Pease, or Beanes, and are of opinion that they feed Better, and Fatter, and with lesse meat, then when they are abroad with all their Grasse they Spoyl; Which I doe more then three quarters beleeve. Some Hog-yards will yeeld you forty or fifty Load, and some more, of Excellent Manure of ten or twelve Swine, which they value every Load worth about two shillings six pence a Load in their very Yards, and prise it above any other; This is practised much about *Kingsnorton*, both in the Counties of *Worcester* and *Warwick*, and in many other parts, as in *Cheshire*, *Staffordshire*, *Derbyshire*,

The usage of their Swine and the making of the Hogyard.

How to feed Swine without any cornish meat.

also as I beleeve, An Excellent Piece of Husbandry; I speake Experimentally hereof, having made great Advantage my selfe hereby.

Raggs.

As for Raggs of all sorts there is good vertue in them, they are carried far and layd upon the Lands, & have in them a warming Improving temper, one good

Woolls.

Load will goe as far as halfe a dozen or more of the best Cow Dung. Course Wooll, Nippings, and Tarty Pitchmarkes, a little whereof, will doe an Acre of Land, there is great vertue in them. I be-

Marrowbone.

Beefe brath.

leeve one Load hereof will exceedingly well Manure halfe an Acre. Marrow-bones, or Fish-bones, Horne or shavings of Horne, or Broaths made of Peeke, Meate, or Fish, or any other thing whatsoever, that hath any Liquidnesse, Oylinesse, or Fattnesse, have a wonderfull vertue in them, let all be precious to thee, and preserved, for every little addsto, & helps in the Common Stock, and he that will not be faithfull in a little, will not be faithfull in a greater quantity, as is alway seene by constant Experience.

Sheeps Dung.

As for Sheep-Dung, Cow-Dung, and Horse-Dung, such old ordinary Soyle, I intend to say little, in regard the Common use thereof, which hath extracted the vertue & excellency to the Kingdomes great Advantage, onely thus much I shall say by way of advice, and reproofe from my owne Experience.

I By way of advice, Prize them according to their worth: The Sheeps Dung is best, and a little hereof is of more strength and heart then the others are, but whether it arise from the rich, and pure nature of the Dung, or from the warmth of the Sheeps bodies, I know not, but I conceive from both be-
 6 D

it warms the Land and makes it comfortable; And for your Horse Dung that is held to be too hot, but I never sensibly discernie any Inconveniencies therein; especially where it is feared, let it be but well Wroxed or Roten, and I conceive it is one of the best compost for Land, and I am sure, if it be Soyle of Horses or Stables where is much Corne given, it is more hearty and rich by far, then that where Horses live on Hay onely; And for Cow-Dung tis as well knowne by all, both in nature and use, that Ile save further trouble.

Horse Dung:

But by way of Reproofe of one Piece of Husbandry in the applying these three sorts of Dung to Land, I say; Men are mistaken, in that they endeavour not all possible Expedition in laying their Dung upon their Land; when once they begin, and in spreading of it, as soone as layd on, and Ploughing of it into the Land as soone as spread, for if my Judgement faile not, they lose a great part of the Fruit, Sap, and Vertue thereof, that carry it forth unto their Land about *Midsummer*, or in that heat of Summer, and spread it all over their Land, and so let it be open to the Aire and drying Winds, and parching Sun, and Showers, which coming hastily helpe to wash it off their Land, and thus lyeth for a month or six weekes before they Plough it into their Land, all over the Field or County, and many places more, which besides the Raynes washing away, consider but the Winds drying, and the Sun and Heat Parching, and Scorching of it, and Exhaling and Drawing away the Spirit of it, and then tell me the Excellency of this Husbandry, to me it

A great mistake in letting Soyle be uncovered.

seemes

seemes not rationall, Ile submit to better Judgements, they that are of a contrary opinion, I desire them to shew me Reason, and informe me better; And till I know better I desire to be excused.

How to lose
none of the
least benefit
mucking any
Land nor with-
standing Land
Floods.

Some lose no
Land flood at
all.

Urine of man-
kind usefull
for Lands.

And for their Sheeps Dung, as soone as ever one Land is foulded, let the Soyle be covered Immediately, let the season or weather be what it will: Also in the Manuring your Green-Soard or Grassie Land, doe little in the Summer, but either in the later end of it, after *September*, or else all Winter long is the porper season, when it may have Raine to beat it into the ground, or Frost to wrox it and dissolve it; And though sudden showers will wash some away, which is farre lesse upon Grassie ground then Tillage, yet if thou have any Land both below or under that thou Manurest, thou needest not lose the least benefit, if thou please to turne it over, and let it floate thy other Land, with that which the Land-flood otherwise would carry away; And this course some Ingenious Husbands hold in all their Lands, What Raine or Land-floods fall in their over grounds, they carry into the next below that, and float there, then what falls in that, with the rest of that which is a floating there they carry into the next, and so into the lowest, and so will not lose so much as the advantage of a Common Ditch that carries the least Land-flood with it, but this falls in occasionally here and therefore no more hereof.

Mans Urine is of great worth, this will fatten Land more then you are aware of, and it were not Ill Husbandry to take all Opportunites to preserve it for thy Land.

Asbes

Reduement of Land to pristine Fertility.

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Ashes also have a secret vertue and operation, of what nature soever or sort, that are burned throughly to dust, but your Wood-ashes are best, and usefull for Soyle and Compost. Soot also hath a vertue of fruitfulness for Field or Garden as some asseirme, but I conceive the most proper soyle for Gardens are your Sheep-dung, your Hen muck, and Pidgeons dung, with your well rotted Horse muck, especially for cold Land; or else the rich Moulds, or any good Manure that is growne to Mould, is as good and naturall as any of the aforesaid Soyles, provided you lay good store of it thereon; and so also as I conceive it is best for your Orchards, or young Nurseries of Fruit Trees, but of neither Garden nor Orchards Advance is my designe for present, and so no more of that, much may be hereafter.

Ashes.

Soot.

Best Manure
for Gardens.

Stubble of all sorts, and other Vegetables, the more in quantity, or Straw, or Hay sothered upon the Land is very helpfull, and of good use with every Husbandman, that I need say no more thereof.

Stubble, or
Straw.

Sir Francis Bacon is of opinion, that Salt mingled with Corne hath a very good operation being sowed with the Corne, which possibly may, because brackishnesse is fruitful to the Land. Also that Chalke and Lime sowed with the Corne is very helpful, and that steeping your Corne in fat Water, Lime-water, or Dung-hill Water, hath a wonderful effect to work strange things; Of all which my selfe having not made full Experience, can finde no more Advantage therein, then just so much as is added to the Corne, either of the Chalk or Lime in substance; or so much as is added of the Soyle or fatnesse of either of the

Salts effect.

How much
Liming Corn,
or watering
Corn advances
it.

R

Waters

Waters and no more; For having made a thorough trial thereof found no other wise, nor nothing of that great Advantage promised; But let not me prejudice any Ingenious trials of the same, others may finde more, possibly I might misse in the manner of my application.

Oyle, the fruit
thereof.

As for Oyle, I am confident it is of a very enriching nature to Land or Corne, but whether the cost required will be requited I leave to Experience, for I have not forgotten the Oyling Corne Patentee, that great designe to so little purpose; who drew so many Schollers after him, but I had the happinesse to escape him.

Leaves of
Trees,

The Leaves of Trees laid together, or cast into some High-way, or Water-flows, or mingled with other Soyles, will make very good Compost also.

Fearne or
Rushes will
make soyle.

Also Fearne, or Rushes, Thistles, or any course Straw, or Trash whatever, flung or cast into the Fothering-yards, among your Cribbs under your Cattel, will be both good Litter to lay your Cattel dry, and warme, and wil make very good Soyle, as all good husbands know.

Some more particulars may be spoke too, and some further directions given, but i'll forbear, Experiencing these, wil work out more discoveries. So much for this fourth Piece.

*The fifth Parcell or Piece, which is a new
Erection, or Plantation of divers sorts of
Wood, and Timber, in such a way as shall
raise as much in twenty yeares growth, as
usually*

Reduement of Land to pristine Fertility.

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usually and naturally groweth in forty or fifty yeares, whereby the Draynes or Ruines of Wood in this Kingdome may be gallantly repaired, and severall Groves or Plumps of Trees may be Erected about any Manour, House, or Place, for delight and pleasure; And in such severall formes as men desire, and as much Wood for quantity raised in one Acre, as is usually in three, foure, or five Acres of our usual Copices, or Spring-woods in most part of this Kingdome. As also how to thicken those Spring-woods that grow so thin, as usually most doe, whereby they might be made as thick againe and yet not hinder the growth thereof.

CHAP. XXI.

Speakes of the nature of the Land, and sheweth the severall sorts of Wood, and how to plot out the same to most delight,

WHich purpose let all men use their utmost indeavours and skill to lay their Woods and Coppices, or Spring of Woods, as dry as possibly they can, for Wet and Coldnesse is as prejudiciall, and offensive to the fruitfulnessie thereof, as it is to

R 2

Corne

Come or Grasse, or any Fruit Trees, whether Apples, Peares, Plums, Cherries, &c. All which though every man indeavours little herein, and though to their ancient Spring Woods little opportunity can be gained, yet what can be gained hereto prosecute it, as of great Advantage.

And for a new Erection of Wood, where never any grew, and raising a new Plantation, which is one of my maine designs, a Piece so little practised, which before I have fully ended, you will wonder it should have beene so much neglected being so feasible.

Therefore when thou hast designed a Piece or Plot of ground thereto, which should be dry, sound, and pretty hearty, thou needest not much matter what nature of Land it be, so that thou canst get two Spade graft, or one and an halfe of good Earth, before thou either come to the stronge Clay or Sand, yea though it have some Gravell, or Stones, be it but well mixed with good Earth it may doe well, yea best of all, because of hollownesse and lightnesse of it, though it should be very boggy Land, yet if it have but any richnesse of nature or heart in it, thou shalt finde a marvellous futablenesse therein, to make a very good Improvement this way, yet the most naturall Land hereto in the Experiences I have made or seene, is your warme, open, gravelly, sound Land, the richer the better, as aforesaid.

When thou wouldest Plot out thy Land thou designest to plant, which thou mayst cast out if thou aime at thy delight and pleasure onely, either into a Square, consisting of foure Squall sides, or else

The most naturall Land to plant with Wood.

How to cast out thy Wood plots for pleasure,

into

into a Trangle, having but three equall sides, or else into a Square, which hath two equall sides longer, and two equall sides shorter, or an Ovall Capacity; or else into a Circular plot either, as thy Phantasie leads thee, or if thou mindest onely thy profit, and intendest onely to raise Wood for thy use, and increase, and the Countries service, It matters not in what forme thou cast it into; how ever seeing at the first it is as easie, and no more chargeable, to cast or lot out thy Wood into an Artificiall uniformable Plot, as to doe it rudely or confusedly, I rather advise it, but presse it not, no further then as to the Gallantary and delightfulness of it, or thy Spirit thereto, wherein may be as much pleasure, Delight and Recreation, as in your curious Gardens, Orchards, Walkes and Bowers, especially being planted about a Mannor House, or dwelling place for warmth in the Winter, and Shaddow and Coolenesse in the Summer, for which Advantages many of the Nobles and Gentry of this Kingdome would give great Summes to purchase; Which hereby may be obtained at an easier rate.

Therefore having cast thy Land into any of the Plots aforesaid, except the Circular which I conceive of least sutablenesse of all to this worke, then suppose it be ten, twenty or thirty Acres, I suppose lesse, if thou cast it into a Square, or Triangle, or Ovall way, then having found the middlle of it, thou mayst if thou please, cast out a Circular round Plot or Ovall containing either a ninth part, or a seaventeenth part, or but a fifth part, And that I compass in with a little Ditch, well quicksetted with

R 3

thorne,

How to cast
out thy Plot.
into most de-
lightfull divi-
sions.

thorne, and here and there an Ash, Oake Elme, or Witchazell reserving a Grasse-Plot to walke round about, of twelve or fifteen Foot wide, and then equally divide the rest into so many parts as thou intendest severall falls therein, and every Division separate with a walke, or Grasse Plot betwixt them, containing twelve or fifteen Foot widenesse, which will serve as a Cart-way, or Passage, to fetch out thy Wood at every fall, as well as for walkes for thy recreation, because in this manner of Planting, thou canst not Cart along thy Wood, as thou dost along thy usuall spring Woods, but onely along thy Borders, which when thou hast so divided all by Ditches which make thy divisions, thou mayst, if thou pleasest to cast thy Bankes outward, and set thy Hedge inward, Plant the Bankes with Strawberyes, which will delight themselves herein, and grow fruitfully, either on the Sun or Shady sides. Now when thou hast plotted out thy ground, prepare for Planting, and first inquire, and search about the Country for Set-gatherers, such as will bring them in every two dayes fresh, for the fresh gathering and suddaine setting of them in their places, is of more Advantage to the furtherance of the growth, then thou imaginest.

Planting of
Strawbery
is excellent.

How to get thy
sees for plan-
ting.

Secondly prepare such Servants herein as will not deceive thee: And avoyd the getting of Eaten, Bitten, Rough, and Brushy, all being unproveable sets, receive them not, but give them such wages, as they may afford to get such as are fruitfull and proveable, and if possible get them from off as hard Land, as thou Plantest them upon, however be sure they be
thin

thriving smooth Rooted, or smooth Barked Sets, of what sort soever they be, and as straight as possible thou canst procure.

Thirdly, for the severall sorts of Wood quickest in rising and growing, generally are your soft Woods; The quickest growing wood as Poplar, Willows, Aspe, Sycamores, Maples, Witchazell, &c. your Ash is a gallant thriving Wood, also, and indeed for quicknesse and profit too, it is the best in my Opinion, some good Oske sets will doe very well, and Elme also towards your outsidcs, but if thou resolvst to be a Planter to purpose; then thou must be a Sower of all Seeds of the severall Woods aforesaid, or Setter of many Sciens, and a Breeder up of Nurseries continually, for indeed were Planting more in fashion, Sets would prove very scarce, which now for present are plentiful enough, and in most part of the Kingdome may be had for two shillings, or two shillings sixpence a thousand, some more some lesse according to the goodnesse and bignesse of them, and dearenesse of the Country for workmens wages, and indeed the lesser the Sets the more certaine for growing, but the bigger they are the fatter, and sooner they rise to their growth, only some of them may faile.

What Sets are best.

Fourthly having prepared thy Sets, then set to Planting of them, which I advise after this manner, All thy Borders made or but cast out, thy Sets must all be Planted in the same way as thou wouldest Plant, or as usually men doe Plant a Thorne hedge: First cast up by a Line a little Ditch about two Foot, and halfe, or three Foot Broad, just so deepe and but

How to Plant thy Sets.

How to make
thy Dike to
plant thy Sets
in.

but a little deeper then thou canst take up good mould, and so as all Labourers begin their turning Turfe doe thou, and then lay up a little mould, and there lay thy first Row of Sets, some say three Sets in each Foot, but I conceive if thy Sets be good two may doe very well, then cover them.

Secondly, raise another Border about nine Inches above that, thy Mould or Banke layed well ashore, or sloping, and there plant another Row, and cover them well also, as men doe their second Row of Quick-sets.

How to plant
thy Quick,
and mould
them also.

Thirdly, cast up another Dike against that, like a double Dike, so as both may meet together upon the Top, and lye close together, and then plant two Rowes more of Quicke as was directed on the other side, and if thou hast any quantity of space, betwixt thy two upper Rowes of Quicke, thou maist plant one Row upon the Top, or two, if thou seest cause, if thou hast roome to spare; And so thou must goe on throughout thy whole Plantation, a Dike and a Land or Banke, and againe another Dike and a Land, and so throughout. And be sure how-ever thou doe, to plant all thy Sets in the over-most best Mould or Earth, that thy Sets may neither roote in stiffe-binding Clay, nor hungry Sand, and feare not, leave no Land undigged, or unwrought, nor plant none in Greene-soard by no meanes.

'Tis a simple Piece I confesse to make good the issue promised, but when thou hast proved the truth of it, then thou shalt be better able to judge of it. Many Objections will be raised against it, but let not the simplicity thereof offend thee, for I shall assure thee,

thee I shall give thee such a President before I have done, and leave the thing so cleare, that there shall not be left the least cause of Suspition.

CHAP. XXII.

Answereth severall Objections against this Projection, and gives a President for making good the same.



That you will lay your Land so dry, and deprive your Sets of all Moysture, that it is Impossible they should grow at all, especially in dry, sandy, or gravelly Land, much lesse to grow to such an Increase as is promised.

Obj.

Hath two branches; First, all Sets and Plants for the most part require Soundnesse, and warmnesse, and were many of our Spring Woods more dry, and warme, they would prosper much the better, although much dry, haskey, sandy, hungry Land doth not many times afford a thick Coppice, or good Spring, which is especially occasioned by reason of the Barrennesse of the Land, and the ill Husbandring of the Spring after falling, not Preserving of it from Cattels bruising of it, as will appeare more fully before this Discourse be ended. But secondly, Experience shewes the same, that upon a sandy gravelly Land, all the aforesaid Woods prosper exceedingly in the way of the aforesaid Planting, in so much that should I tell you the Experience thereof, you would a little wonder at it.

Ans. 1.

Ans. 2

A new Erection planted twelve yeares sithence, at
S the

A President of
Wood Plan-
ted, that one
Acre was
worth 60 li.
at 11 yeares
growth.

What an A-
cre costs Plan-
ting.

the Eleventh yeares end a Fall was made, and so much Wood cut upon the same as was worth or sold for 60 li. pounds an Acre or more; it was much Pole wood, yea a good part of it made Sparrs, and some part of it small building Timber, so that a Gentleman of that County, builded himselfe part of a very good Barne, the whole Roofe of it with that Timber; and this yeare was another Sale of Eleaven yeares growth of as good a Value, the Land it was Planted on was worth about ten shillings per Acre, and every Acre cost somewhat under seven pound an Acre, all Digging Quick-sets, and all charges in the Planting of it; And the second Crop they make accompt will be as good at eight yeares growth; And to me it seemes possible, it may, if not better. This President is at *Billing* at the Earle of *Toomans* in *Northamptonshire*, managed by a most Ingenuous Gentleman, called Master *Cartwright*.

Obj.

This way of Planting will certainly be so thick, that they cannot prosper one by another, or else it is Impossible the Earth should yeeld Fruit, Heart, or Sap, to so thick a Plantation.

Ans. 1.

Your Spring-woods, in some parts of them grow as thick, especially where your old Roots grow so thick, as you can scarce set one foot betwixt them, and every Root may send forth twentie or fortie Spineyes, and yet all nourished from the Earth; and these Stooles they grow upon also.

Ans. 2.

Secondly, I answer, that Experience hath also made it good as aforesaid; For other Planters in these parts Planted a foot or more asunder, and yet came not neere this, nor is neither halfe so much in quantitie;

quantitie; Nor yet the other thinner Plantation, although little or never the whit the bigger, or taller, then this, which is so thick Planted, nor never worth so much by the Acre of many more years growth, as this at the Eleventh yeare.

And for the Effecting this Designe, thou must take in two or three more Particulars, one is a strict Observation of the Season in Planting; And then secondly, your Demeanure towards it after Planted.

First, The Seasons are as soone as the Lease is false, the earlier the better, faile not to be well prepared of Materialls to begin with *November*, and so thou mayst continue three moneths compleat untill the end of *January*, and possibly some part of *February*, but it is somewhat hazardous, and may exceedingly faile thy Expectation. And for the Moones Increasing or Declining, matter it not at all, nor any Season, Wet or Dry, Frost or Snow, so that thy Labourers can but worke, and be sure that what Sets be gathered one day, may be Set the next if possibly, or next after; And shouldest thou be occasioned by any hindrance, to keepe thy Sets longer Unset, be sure thou get their Roots into the Ground, well covered with good Mould untill thou canst Set them, and be not drawne away to the contrary, by any Workmans perswasion whatsoever, for though the lying out of Mould or Unset, does not kill them, yet it will so backen them, that thou mayst lose a full halfe yeares growth in them.

No Observation of the Moone.
Eccl. 1. 4, 5

Secondly, Thy Ground thus Planted, thou must be carefull in the Weeding of it, for I know no greater cause of this so great Advance then this; The

Weeding most necessary.

keeping of the Ground cleane from Weeds, and as mellow and open as possibly, which will cause the Roots to shoot Exceedingly, and the Plant to grow abundantly, thou must for the first, and second yeare prize it, and dresse it, almost as a Garden ; And therefore be sure thou preserve it from any Beast, Horse, or Sheepe, biting it, in the least measure ; should Cattell breake in, they would destroy one yeares growth in a moment.

Boggy-Land
will bring
forth a Plan-
tation of
Wood.

As for thy Boggie Land, much of it that is perfectly Drained to the bottome, that is little worth, will nourish a Plantation of Wood to good Advantage, especially your Poplar, and Willow, and Aldar, your Aih will grow well also ; But therein you must observe, to make your Dikes and Draines so deepe, that you may lay it compleatly dry, you must goe under all your Bogge, to the cold spuing-Spring, and neare a foot below that, and then what you Plant upon the Bogs, or Lands, you may expect a wonderfull Issue : 'Tis very common, in foure or five yeares, that the Willow rises to gallant Hurdle-wood, and in five or six yeares, to Abundance of Fire-wood & small Pole for Hops, and other Uses. One Acre of newly Planted Willow, upon some Land not worth two shillings an Acre, may in Seaven yeares be worth neare about five pound, in some parts, an Acre ; And in some parts of the Kingdome more. And I verily beleeeve, were all the Bogge-Lands in *England* thus Planted, and Husbandred well, after these Directions, might rayse Wood enough to maintaine a great part of this Kingdome in Firing ; And for other sorts of Wood, the well Ordering and Nourishing it, al-
though

What one A-
cre of Willow
Planted on
Boggy Lands
may be worth.

though in Lands so bad, would produce a wonderfull Profit, farre more then I will speake of.

And I suppose, he is no ill Husband that can rayse a Bogge to a double Advance, considering some of them are worse then nothing; But when they are so Exceeding Course and Barren, you cannot expect such Fruitfulnesse or Advance, as from that Land that is of a fatter or better nature; For certaine all Plants and Woods will doe much better, on better Land then on courser; And in case thou shouldst bestow Soyle or Manure on thy Land before thou Plant it, it would be both Labout and Cost exceeding well bestowed, and conduce much to the nourishing of a young Plantation.

Now shall follow a Piece or Device how to thicken your Springs or Copices, where they grow thin or are decayed; Which fully observed, may doubly Improve the same, and such a way is here projected as is little used in any Woods where I ever yet came, and as unlikely also as anything I have spoken unto, which is no more but this: At every Fall, where thy Wood groweth thin, take a good straight Pole, growing of Ash or Willow, at the usuall growth of the Wood, and Plash it downe to the Ground, about foure or five Inches above the top of the Ground; not cutting it wholly off, and cut off the head of it, and put the over end of the Pole after the head cut off, a little into the Ground, which thou mayst doe, by bending it in the middest like a Bow, and so thrust it in, and so fasten it downe, once or twice from the middle of it, and upwards, close to the Ground with a Hooke or two, and out thence

How to thicken
Woods that
grow too thin.

where any branch would put forth standing, will put forth lying, and more and more grow up to Plants and Poles, as the other Spring doth, and so you may, though it be incapable of Sets, or planting with the Root, lay over all your Vacant places, and thicken your Woods where ever they are wanting.

A President
of a Wood
thickned.

And let me begge of thee thy credence here, it is most certaine, I speake out of my owne Experience, one of the gallantest Woods I know in *England*, it is constantly used at every fall in some place or other of it; the Wood is eighteen falls, every fall eighteen yeares growth; their very Faggots made at length of the Wood (besides all their Pole-woods) all their Brush being Fagotted into the Faggot, were this yeare sold for one pound three shillings foure pence a hundred, and forty Faggois make a Load, it is worth about twenty five pounds an Acre every fall: Study warmth all that possibly thou canst, for any Plants are helped much in mounting aloft thereby; therefore as I conceive they prosper worst upon your cold Clay which nourisheth the Tree little, and hath no quicknesse nor life to quicken the growth thereof; but by the roughnesse and coldnesse of the Earth the Sap is shut in, and cannot get up to spread so frankly as it shuld, and so instead of thriving of the Tree, the Mousse prospereth more fruitfully then the Tree.

Elme Plants.

Your Elme Plants may be gotten of young sprouts growing forth of the Roots of the old Elme, many thousands, which being slipped and set will grow very fruitfully.

Sicamoore
Plants.

Your Sicamoore is a very quick growing and thriving

thriving Wood, especially if it be planted, upon warme, sound, and rich Land, they will thrive wonderfully, and rise to gallant shade, Excellent to make Walkes, and Shadow-bowers, are also very usefull for all common use about building, and good Fuell for firing.

As for Sets of this nature, if you goe to any place where Sicamoores grow, and there in the beginning of the Spring you shall finde the Seeds chitted up and downe as thick as possible; which gather up and set them Presently, and you shall have your increase at large, being preserved curiously from any the least prejudice of biting, breaking, or shaking the said Trees after Planting, according to the first directions; and so I proceed to the Sixth and last Piece of Improvement.

The Sixth and last Piece of Improvement, consisteth of a more moderate Advancee of all other sorts of Lands, not capable of the aforesaid Improvements, by enriching some of them by other wayes of Husbandry, which although they will not make up so great an Advancee, yet will be very considerable, and worthy the Practise of any Ingenuous spirit.

And first for your richest sorts of Land conceived as good as Art and Nature can make them, yet

Richest sort of Land.

yet consider the ensuing Discourse, may hold out some Improvement to be made out of the same. As for your best Land of all, much whereof may be cleared from Rishes, Mosses, Sow Thistle, Nettles, Weeds, and Hemlock; and only bring forth pure Grass, both thick and rich; this possibly may admit of little Improvement upon it self, but unto the Owner and Common-wealth this may yeeld above double profit for some yeares by moderate Ploughing, and afterward returne so soone to his naturall fruitfulness, as that it shall yeeld his old Grazing Rent the first yeare, and so continue; But this Land being of all other the most subject to Abuse, and greater Prejudice then any other Land whatsoever; And I am confident unless the Prescribed directions contained in the third Piece, the Fourteenth and Fifteenth Chapter, be most punctually observed, it may suffer losse, therefore I must provoke no man to take the pursuance of them here, unless any who is of such a Publique spirit, as rather desires the Publique then his owne private Advancement; And for some other men when they finde so great profit, come in upon them by this or any other meanes, they out of a thirsty desire of gaine will Over-doe, Over-plough, and so destroy their Land: for it is not Ploughing simply as aforesaid, that impoverisheth Land, but too oft Ploughing, and looking you where you will generally throughout this Kingdom, and you will finde where any good Pasture is destroyed hereby, they have Ploughed Six, Seven, and some Nine, Ten, and some Twelve Crops together, which I approve so well, as I say it is a losing

Deftruction of
the best Land
is by over-
ploughing.

Losing Extreame; And I wish it were Fellony so to abuse a mans Selfe, Lands, Posteritie, and Common-Wealth; Also which Lands may be so many yeares before they come to a perfect Soard againe, as may lose as much in Abatement of Rent before it come up to the old Rent, as they got in the Advance Rent by Ploughing. And yet if I affirme, that Mowing Land without Limitation, is as Impoverishing unto it, as Ploughing Land with moderation; Especially Upland Pasture, I should not much mistake; I am a greater Enemie to the one without Limit, then to the other with Moderation, and yet the one is cryed downe by all, and the other by few or none; Therefore my Advice shall be, to Plough thy Land three, foure, or five Crops, if thy affections stand that way, and lookest at greatest Profit, Sowing it first with Hempe, Oade, or something else that better agrees with the ranknesse of so gallant Land, which for divers of the first yeares will be so ranke, that Corne will fall Flat, and Dwindle, or Rot, and neither be kindly in qualitie, nor rise to the strike in quantitie, as it will upon those Lands after divers Crops taken, nor upon leaner Land, and then after with Corne the last yeares. And if thou wilt but lay it down round, and even, upon the Wheat, Rye, or Messin Stubble Sowed in his proper Season, observing some other few Directions, handled more at large in the aforesaid Chapters, thou shalt not need to feare thy Land Impoverishing or Abating Rent; It will produce so gallant and sweet a Turfe, as shall feed as well, and faster then it did before, if not better: For my owne part, I doe affirme, That had I the managing it whilst

Mowing Land
a great Impo-
verishing.

Moderate
Ploughing
better then
unlimited
Mowing.

Ploughing left
indifferent
on the Richest
Lands.

under Tillage, I would make good the same upon good Securitie; But as I said before, use your owne libertie, he that Ploughs not such Land at all that yeeld its utmost strength & fruit, which admits of no Corruption or degeneraton, doth well: Because the Kingdom will afford other Land enough, that stands in more need of this Husbandrie to supply the Kingdome Corne. And also, because many men lo'd it a great Disparagement to Plough up such gallant Pasture, from whom I doe very little or nothing discent in Judgement; yet he that (if by Ploughing) can Advance the Publique and himselfe also, I dare not say but he doth better, yet neither much amisse; Every man herein please his owne affections, where the Common-wealth is not eminently prejudiced.

Divisions of
Lands occasi-
ons Advance.

Small Divi-
sions reproved.

But for other wayes of Improvement of the Richest sort of Land, I know little more worth Divulging, for either the Cost & Charge expended will not produce an answerable present Advantage, or else the continuance and certaintie of future hopes may prove doubtfull; Which Uncertainties I affect not, onely take this Remembrance with thee, that if thy Pasture be very Vast, and Large; Lesser Divisions will set the dearer and better, and are every mans money for Coveniencie, when greater are bargaines for few men, and those great ones also that will make their owne Advantage, yet use moderation herein also; A large Pasture is comely, and a little Pingle Inconvenient, Extreames are neither for Credit, nor Profit, but for Destruction; A Pasture about one hundred, or one hundred and fiftie Acres is much Commendable; But in thy Divisions be sure to make

make them alwayes in the lowest parts of thy Lands, that so thy Ditches may serve in stead of Draines, or Convoiances of Water, or taking away the Coldnesse that offends thy Land, every mans owne Experience will patronize this Position.

But secondly, when any of these Rich Lands shall Degenerate into Mossinesse, Rushes, Coldnesse, or Over-grow with Weeds, Nettles, Heinblocks, Sow-Thistles, &c. then thy Land will need good Husbandrie, and wil admit of Improvement for Heinblocks, Nettles, Docks, Chick-weeds, and other common Weeds, These are as much occasioned with Fatnesse, and too much Richnesse, as from any other cause; And when from this cause, no Cure like Ploughing, for that brings profit with the Cure, and Advance in the very Reduement, there is much Land of this Fatnesse; Some there is in divers parts of this Kingdome, as about Hay-Stacks, or Sheep-Pens, or places of Shade, or in the Warmest parts of many Pastures, which Sheepe and Cattell chuse alway for their Lieare; All which according to former Direction (in Ploughing old Restie Land) will Reduce this to Moderation in over much Ranknesse; And especially if it be Ploughed somewhat finer then the other sorts of Lands, it will beare neare as many more Crops without prejudice, and no other meanes whatsoever will so Surely, Feactly, and Profitably, worke this Effect in my Experience.

Ploughing the
only Cure of
Weeds.

And as your Land degenerates to Mossines, Rushes, and Coldnesse, none will deny the wonderfull certaine change and alteration thereof by Ploughing,

Ploughing the
only Cure a-
gainst Mossi-
nesse, Rush, &
Coldnesse.

Ploughing the
onely cure a-
gainst Mos-
tuesse, Rush,
and Colentise.

if they should, I conceive I have sufficiently cleared it where I have discoursed of the second sort of Land at large in the thirteenth, fourteenth, and fifteenth Chapters, and answered severall Objections made against the same; yet one or two more remaines to be Objected; Beare with me, I say, the more herein as Coveting to beguile men of such Prejudice as possesseth most and so deeply rooted, as will aske hot water to Mattock up.

Obj.
Against timely
Soarding.

Some say they have found the contrary, their Land Soarding of many years after, and when it hath come to Soard, it hath beene neither so Rich, Thick, nor Fruitfull, and therefore Prejudiced by Ploughing.

Ans. 2

All which I Eccho with thee that possibly it may be so, and yet this may not reach too, nor in the least weaken my Propositions, which gives direction onely to three or foure Crops at most, unless in case of Weeds and Nettles, and too much Fatnesse, I never advise to Plough thy Land so long to bring it to this, I abominate such Husbandry, neither doe I absolutely perswade to the Ploughing of all Lands without Exception, well knowing that in some parts of this Kingdome, there is some Lands so Binding, so Tough a Sodering Clay, and Cold that it will neither Soard so thick nor quick as others will, which sorts of Lands if Rich, and Sweet, will lose Advance by Ploughing, then any other, but as it doth degenerate and decay, use it as a Medicine to this sort of Land, and use it as according to former Rules, and lay downe thy Land according to former Limitations, and question not though it Soard not so soone

What Land
are best and
vantayed by
Ploughing.

as other Lands, Mixed Light, and more Losened, yet it shall both Soard so Timely, and so Richly as it shall counter-profit all thy prejudice. And for other Lands either Gravelly, Light, Warme, and Sandy, or else Mixed, and Compounded, I dare affirme some Land the first yeare may be full as good as it was before Ploughing; I have knowne a winter Subble after the Crop was Inned of some Pastures, worth as much that winter halfe yeare as it usually was worth any winter upon the old Soard, and yet hath not beene Pastured the whole halfe yeare neither, nay some have beene worth as much as the said Lands have been worth almost the whole yeare. The Eadish hath beene so fruitfull, and my selfe have had the like Profits and Advantages, and have had a Wheat Stubble of my owne being the third Crop, that will make good what I have Affirmed, and the very first yeare of Grasing full as good if not better, then it was upon the old Turfe before Ploughing.

What Land it is that may Soard as well the first yeare, to as much profit as before.

A president of Wheat Stubble its speedy Soading.

Against continuance, and holding fast.

They that cannot manage this Objection further, yet confesse and say, tis true for two or three of the first yeares it may possibly hold fruitfull, but it shall fall off seven, eight, or ten, or more yeares, after that it shall be worse then ever.

Object.

To this I can say little more then what I have said before, unlesse you can produce me some Experiment, wherein my directions have beene observed, and your Prejudice succeeded, otherwise you say nothing; which Experiment when you have found, I shall not question but to discover your mistake, either you are mistaken in the nature of the

Answer.

Land, or else in the manner or way of Husbandry and Ploughing, or else in the Method I propose in the laying of it downe to Graze, or else the Stubble you lay it downe upon, in all which if you pursue me not, expect it not, all being *feasible*, and any man may more certainly, and as conceive more delightfully, worke by Rule then Randonie, I say then in the ordinary course of nature, Gods blessing accompanying it, it shall but Increase and Improve for many yeares, and continue untill some of the former and aforesaid Corruptions predominate againe; Of which my selfe hath had large Experiences, and can produce many Presidents, and doe but you looke into and upon much of your new layd-downe-Land to Graze, which being continually Grazed doth put more prooffe into all sorts of goods, breed Better, feed Faster, milkeith Fruitfuller, then old Pasture that is Richer. I have bought the purest Mutton out of Land the third, fourth, or fifth yeare after Ploughing, being about eighteene or twenty shillings per Acre, then any Land in those parts of neare Thirty shillings an Acre hath afforded, and in reason it must needs be so, because what Grasse comes fresh, is pure without Mixture, and sweet being Young and tender, and having no corrupt Weeds or Filth to annoy it, and fruitfull, having heart and strength left in the Land to feed it, and for continuance feare it not, if Grazed, for the very Grasing will Inrich it every yeare, and Improve it untill it grow so old againe, and over-runne with Mosse, Ant-hills, Rushes or other corruptions, that it requires Ploughing; and then let it have it, for the Lands and thy Advantage sake;

A president of
fattest Mutton
on the newest
Turfe.

fake; I know other Pastures which indeed were Ploughed nine or ten Crops, and did much prejudice the Lands thereby which I exceedingly condemne, yet this President answers this Objection, it lying now upon the fourteenth or fifteenth year after ploughing, is better then ever was since Ploughing, and mends every year and is rich and healthfull if not more then it ever was, and would far more have abounded in fruit, if Moderation had beene use!

Another Objection may be raised which is this your new Ploughed Lands are more subject to Rotting Sheepe then your old Pasture.

I answer usually it is so, and Experience hath proved the same; yet if you ever found any parcell of Land Husbandred according to these directions, nicely observed as aforesaid, that it was laid so high and round, his over Furlongs Drayned by the lower and a good master Ditch or Trench the lowest, and Ploughed but three or foure Crops, and laid downe upon the Winter, Corne Stubble &c. you either found little danger in it for Rotting, or else no more then other Grazed Lands thereabouts was subject to, for in great Rot yeares indeed, many of your Cold, Sowre, Rushy Pastures, Rot themselves, especially such as have either great Road-ways, Drifts, or Passages through them; yet observe these two directions following, put case it should Rot first or second yeares, then Stock it with Beasts, and that prevents it, or else secondly with part Sheepe, those barren Sheepe to feed, and not with a breeding Stock, and part Beasts, & very easie that you may have Grasse

Object.

Ansir.
To Rotting
Sheepe in new
Pastures.

To prevent
Rotting in
new Tilled
Pastures.

at



at pleasure, to prevent them from eating Dirt or Gravell, and this will turne thee out as much profit and secure that danger.

Separations
and rayfing of
Quick-set
Hedges.

Hedge Roses
a thing of de-
light and cre-
dit.

As for Rushes, Mofse, and Coldnesse, which doth not much offend the best sort of Land, I referre to a more proper place, and have little more to say in the Advance of this richer sort of Land, but onely that in your Separations, and divisions of your greatest Pastures, you be very curious in erecting Quick-set Hedges after the manner prescribed in the Fifth Piece, and the one and twentieth Chapter, and be most carefull of preserving them from biting and treading, and well fenced from any Anoyance, and maintained with constant Weeding for two or three yeares together, all which exactly observed you shal raise upon each Lordship or Pasture, Fuell and Firewood sufficient to maintaine many Families, besides the Timber which may be raised in the Hedge-rows, if here and there in every Peach be but planted an Ash, Oake, Elme, or Witchazell, all which will not onely be most profitable, but most delightfull and honourable among Gallant Personages, and men of Ingenuous spirits.

And if to this thou wouldest but Adde the sowing of Kernels, or planting Crab-tree Stocks here and there in all your Hedge-rows, and grafting of them, and preserving them precisely till they come to Trees, how gallantly would this good Land nourish them, what a benefit might the fruit of these Trees yeeld either in Perry or Sider, to be transported into other parts, or else to releev our poore at home, of which were there plenty this deare yeare; one
third

third part of the Mault of this Kingdome might be saved, and so that Barley be for Bread. I have only two things to informe herein :

1. The one is the great Prejudice men suffer for want of these Plantations, when they make divisions or separations in their Lands.

2. The second is when men have planted a Quick-set they conceive then they have done, not observing perhaps neither to plant it in the Over-moist and fattest Earth, nor for to Root all their Sets in the best Mould, nor when they have done to preserve it from Sheep and Cattell, nor Mould it, Weed it, Hedge it, and secure it, as it shall stand in need for three, foure, or five of the first yeares, All which were it done upon all Opportunities, No man almost in the Kingdome would either be at want of Firing, or Timber, especially were all such Fields, Marshes, Heaths, and Commons thus seperated and divided, All which are feacible, and might be done with great profit to all, and Prejudice to none. I am ashamed to speake so much in these so easie and well knowne wayes of Husbandry, but that there is so much neglect thereof, as if men minded more their owne and the Publique Confusion, and Ruine, then Profit and advancement; some will Cast Bankes and Ditches for seperation, and plant no Quick at all in them, and so destroy as much ground as if they Quick-set it; and so lose ground to no advantage; and others will Quick-set and never Fence it, Weede, nor Mould it, and so it either perisheth at first, or else groweth dwindled, leane, and barren, not worth any thing; or else suffer it to be bitten, or eaten with

Reasons why Quick setting thrives no better.

Hedgerowes a great help to the Kingdom in Firing and Timber.

Not preserving Quick sets when planted is tuing to good Husbandry

Cattell, or else stifled with cutting or plashing before it is ripe or ready, that it comes to no thicknesse, growth, or fruitfulness; In all which were there but a little Patience, and Addition of a little more cost and paines, there would not be one foot of ground more lost, but a double or treble Advantage raised upon it in few yeares, and ever after with no other Husbandry continued, but whatever brings in double profit for the charge bestowed. As in the Cutting, Plashing, Scouring of the Hedges, which payes his cost bestowed, and sometimes double and treble, and if it be a Hedge curiously preserved, and cut just in his ripest season, before it begin to dye ith bottome, and have in it either good store of great Wood, or Fruit Trees planted among; The profits may arise to much more then is here spoken of.

CHAP. XXIV.

Wherein I proceed to a second sort of Land, somewhat inferiour to the former, wherein is discoursed the destruction of the Rush, Elag, and Mare-blab, altering the Coldnesse of Nature, and the preventing the standing of Winters Water, and destroying Ant, and Mole-hills, &c. all which are most incident to this second sort of Land.

THis which I call a second sort is our middle Land (I delight in plainnesse, and avoyd all Language darkning the plaine sense, or whatsoever may occasion misteriousnesse, or confusion in the reading or practice, so that this middle sort of Lands, as aforesaid, is all such Lands that are betwixt the value of twenty shillings per Acre, and six shillings eight pence per Acre, which sorts of Lands as it lyeth under a Capacity of the greatest Improvement, I have handled at large in the fore-going Discourse, especially under the foure first Pieces of Improvement.

But as it lyeth under a Capacity of a moderate and lesse Improvement falls here to be discoursed, and although I call it a moderate Improvement, yet being well Husbandred according to the subsequent directions, may produce a double increase, and some farre more, and some lesse, but in all a considerable advantage.

Visiual wayes
to kill the
Rush, Flag, or
Marcbiab.

Draining the
most naturall
way.

Much Tren-
ching repro-
ved,

How to finde
the matter
that feeds the
Rush, & Flag.

And possibly some of these Lands may be of the richest, and first sort naturally, but by some Impvidence or ill Husbandry being degenerate are false under this second, and that where the Rush either Hard, or Soft prevaileth, or else where the Land lyeth so Flat, Cold and Moyst, that the Flag or Marcbiab thriweth, I shall here onely apply one remedy for the removall of them all, to avoid Tedioufnesse, which is most naturall thereto, and cannot faile being punctually observed, and that is a way all men use already, though to little purpose, which is to indeavour Drayning of the same, as you shall see in most mens hands, both Pasture and Common, full of Trenches as they can hold, to their great Cost and Lott of abundance of good Land devoured in the Trenches, and Heapes, and Bankes, they make, and yet all is of little use, the Rush as fruitfull, and the Land as Cold as formerly in comparifon. Therefore I shall advise far lesse Trenching, and yet produce more foundnesse; I say then, as I have often said, secke out the lowest part of thy Land, and there make either a large Trench or good Ditch, or be it but the old one well scoured up (if there be one) to such a Depth as may carry away all that water or Corruption that feeds the Rush, or Flag, from every other upper Trench thou shalt see cause to make, and so ascend to any part of thy Land wher these offences are, carrying with thee one Master Trench to receive all thy lesse Draynes, along with thee, and there make a Drayne (yea all thy Draynes and Trenches) so deepe (for I prescribe no certaine depth) as to that Cold spewing water that lyeth at the

the bottome of the Rush, or Flag, which alway either lyeth in a Veine of Sand, and Gravell mixed, or Gravell or Clay and stones mixed, and thence will issue a little water, especially making thy Trench halfe a foot, or one foot deeper, into which will soake the Rushes food, which being layd Dry and Drayned cannot grow but needs dye, and whither, else scripture is mistaking which saith, The Rush cannot grow without Mire.

It is impossible without going to the bottome to doe any good; Our owne Experience shewes it, and so the depth may be two Spades graft or more, however to the bottome thou must goe, and then one Trench shall doe as much good as twenty, alway curiously observing that thy Trenches runne in the lowest parts of thy Ground, and through the Coldest and most quealest parts of thy Lands, and for the manner of making the same and further Direction, therein I shall refer thee back unto the second Piece, the seventh Chapter where I have spoken something to most of the aforesaid Passiges, but here reminde thee because of the seasonableness thereof, and the little practice made.

But if thy Land lyes upon a Flat or upon a Levell, and have many great wide Balkes, of which there will be no end of Trenching or Drayning, I must then assure thee it is to little purpose, yet art not left remediless for this insuing direction will not fail, and will bring profit with it to pay for curing also, which is a moderate Ploughing, Ridging all thy Balkes, raising and Landing all thy Flats, gaining them as high as possibly thou canst, Plough all and leave none,

How to draine
Land well
where there
is no end of
Trenching.

and doe this three yeares together, and observe such former Directions as are containd in the thirteenth, fourteenth, and fifteenth Chapters in the third Piece of Improvement; And by the blessing of God expect the issue promised, It will lay thy Land sound and dry, more warme and healthfull then formerly, destroy the Rush and many other Anoyances beyond Expectation.

I have bene forced to be more large, and to speake twice to one thing, because of the sutable-nesse thereof unto the Land, but especially because I cannot speake enough to make some to understand it, nor others to set upon the Practise; Therefore if thou wilt forgive this fault, Ile mend the next.

The Causes of
Moulds in-
creasing.

Want of a
Law for killing
of Moales a
great mischief.

As for the Mole-hills, so great an Enemie to the Husbandman, and Grazier, there is so much Experience made for their Destruction, that almost every Ingenuious man is growne a Mould-catcher in many parts, and that is a certaine way, and yet in many parts men are Sloathfull, that because all their Neighbours will not kill them, therefore they will not, so they suffer their Land one third part to be turned up. There is a Law to compell men to Ring their Swine, to prevent their Rooting, it were more Advantage to the Common-Weale, a Severe Law were made to Compell all men to keepe the Mole from Rooting, for he destroyes abundance of Grassie, he covers with the Mould and Corne he throwes up by the Roots, which utterly perisheth, Spoyles the Mowyers work, and Tooles, and rayseth Balkes in Meads, and Pastures, besides the worke he makes the Husbandman to spread some of them, the Cost whereof, were it but

but bestowed in Mould-killing would prevent the
aforesaid losses. And although I can make no new
Addition to the Moales Destruction, there being so
many Artists with the Moale-Staffe, Tines, and
Traps of severall Sorts, of all which I commend the
Pot-Trap set in a Bank, or Hedge-row, which wisely
Set and Planted at all times, but especially in the
naturall Season of Bucking-time about *March*, will
destroy them incensibly; Yet I desire to speake a
word by way of Incouragement to the Ingenuous
Husbandman, not to suffer so great Dishonour to
Husbandrie, nor so great Prejudice to his Profit, as
to suffer (were it possible) one to remaine either in
Tillage, Mead, or Pasture, and if thou have any Op-
portunitie of Water, to be brought over any part of
thy Land, it will drive them out and destroy them so
far as thou canst lead it after them.

Pot-Trappe
chiefe Engine
in Moale-De-
struction.

Water best to
destroy Moale's

*And for the Ant-hills, more Pestilent and offensive,
then the former, in some Sorts of Lands.*

There is but a little Addition that I can make
to what I spake before of Ant-hills destruction;
But to quicken thee thereto, I shall be more large, be-
ing this is the most proper place, because I see them
see little practised; I demand what is the reason that
infinite great Pastures all over the Kingdome are so
over-runne with them? Unlesse men Account of
them Vertuous, indeed some have said, they Increase
the Land in quantitie, and so they may say with
shame, for so they doe, but apparently Decrease it in
Qualitie, Worth, and Fruitfulnesse, halfe some mens
Land

Ant-Hills De-
struction.

Ant-Hills good
to destroy
Sheepe or
Beasts.

How to bank
Ant Hills most
speedily.

Why to lay
them lower
then the Sur-
face of the
Earth.

Land covered over with them, and what is the fruit of them? They beare plentie of wilde Time, Mow-
eare, Phinns, Mossie, and Shar-Grasse, you shall sel-
dome see a Sheepe or Beast bite them, unlessse for
hunger, and then if a Sheepe or Beast be cast among
them, many times Destroyed. For Curing of them,
I shall onely direct the old Piece of banking of
them, but in a more Unusuall way, and somewhat
more speedily, then formerly, yet make a banking
Iron or Spade, made very thin or smoth on purpose,
a little more compasse or comming then your ordina-
rie Spades are, and deeper bitted also. A Spade that
worketh Smooth and Clean will further this Doub-
ly, and then begin with the Crowne or Top of thy
Hills, and so divide thy Over Turfe into five or six
parts, and take downe the Coat or Over Turfe to
the very bottome of it, the Turfe being cut as thin
as possibly thou canst, so thou be sure to goe under
the Roots of the Grasse, else it will not Soard so
thick nor speedily, and so turne it downe round-
about the Ceare, which taken out, (and cast about the
Land so deepe, that when thy Turfe is turned downe,
even just as thou tookest it up, even so lay it downe,
very Turf in its place, that the whole compasse of the
Hill may be rather lower then the Sur-face of the
Ground, and but a very little, neither yet lower
it must be, because else the Ant will returne more
readily againe: And secondly, because then it will
receive more naturally the Water, or Moisture,
which will occasion a more speedy Soarding and
prevent the Pismires returne, for the Moisture will
not be indured by the old Inhabitants. And this
done

done in the proper season, which is in the end of November, December, January, and beginning of February, which seasons if thou faile as good neglect them wholly, for thy Earth will neither have benefit of the Frost to mould it, whereby it will be spread with ease, and have some of the Winters raine to settle it into the Ground, nor the Turfe have fitting time to sodder, and worke together before the dry Weather comes to parch it, and loosen it againe, and so maist lose a great part of that Summers profit which otherwise thou mightest receive; and so herein I have no more to say, but what is the Burden of my Song, and is the only and sure Cure of most of the Malladies that occasioneth Barrennesse, which is prescribed as a soveraigne remedy (viz.) Ploughing according to former directions destroyes them all, and brings meat in the mouth with it, takes away the Phens, the Mos-eare, the wilde Time, and Shar-grasse if used with moderation, and so I have done with this.

As for the Sow-thistle, the chiefe and only Annoyance of all Thistles (as for other Thistles I scarce know how to ranke them among those Grand Corrupters, because the opinion of most men are, that they are most certaine samptomes of good Land as usually they are; so are Nettles, Hemblocks, Mal-lowses, &c.) and yet I had rather they were all destroyed then remaine upon my Lands, but because they are of lesse offence, and we have more greater Prejudices then these, i'll let them passe) but for the Sow-thistle, it is of so great offence that it destroyes all the Grasse it covers, which is many times a foot

X

round,

Easiest way to
destroy the
Sow thistle.

round, and also so easie to be destroyed, that I shall put the Grazier or Farmer upon no other charge or trouble, but onely take a little Paddle-staffe, as a Walking-staffe, and give each one a chop at the root as he passeth by them, which will be rather a Recreation to an active man then a Burthen, and thus every day a few as they grow in bignesse, will in few dayes destroy them all; Or else a Shepheard, or Keeper of the ground, as he walkes among his Cattell may easily keepe them under, as he goes about his daily businesse; but if neither of these opportunities hit, it is but hiring a Labourer a few dayes, who will run over thirty or forty Acres in a day, and no better or more speedy or certaine way have all my Experiences taught me; and he that knowes better, I intreat him to Communicate it. In a dry yeare once about May will serve turne, but if it be a wet yeare, about September after, they had need to be done againe. A more certaine way I know none.

Goose Tansey

For Goose Tansey, or Hoare Tansey like Weed, I must needs make Proclamation, That he that can tell the destruction of it shall doe a very acceptable service; and for my selfe, I should be very thankfull for the Communication thereof; for I can say no more but this, Never Plough your Land too long, nor out of heart or strength by no meanes, for this occasioneth it to grow more thick and fruitfully; and also load your Land hard with Cattell in the Spring, and when it doeth grow high and strong, Mow it downe about the end of Midsummer Moon, or in the dryest and hottest time of Summer, and other meanes I can prescribe none; I hope some man of Experience herein will helpe me.

For

For the destruction of Fearnē, I shall prescribe such poore meanes that thou wilt take offence thereat, yet however, Experience having proved the truth hereof, I will prescribe it, viz.

Fearnē.
how to de-
stroy.

In the Spring, so soone as it begins to grow up a little above the Grasse, while it is young and tender take a crooked Pole, or piece of Wood about six Foot long, and let it crooke at one end like a Bow, or come like a Sithe, with which thou maist strike off all the heads of the Fearnē, as low as thou canst to the very ground, if thou please to make it with a little Edge thou maist, but it will doe without; And this course thou must take the second time also, as soone as it begins to sprout and grow up againe, which may be within three Weekes after the first; and thus having brused and broken, and cut off the head the second time, thou shalt see such a destruction wrought as thou wilt admire, the Reason I cannot possibly conceive other then this; This breaking, cutting, or bruising of the Stalke, doth give a kinde of Check or Comptrole unto the Sappe which is ascending, that it causeth it againe to recoyle into the Rush, and so suffocates and choaketh the life and spirit of it that it descends downeward and dyeth in the Earth; This I am from a very Ingenious knowing Husband informed, which not only destroys it the present yeare, but for the time to come also; who hath made a more large and full Expetience of the same then my selfe hath done. But in some parts of the Kingdomē where Fuell is very scarce, it will be thought to be Prejudice by many to destroy it, especially upon Commons, where they reserve it for Fuell on purpose,

The Reason
of Fearnē
dying.

and is a very great helpe to poore for Firing; yet whether in those very places it be so good as an Acre of Grasse I question, but there are other parts where it is little worth, and some places not worth getting, yet is the ruine and destruction of all the Grasse it groweth over, for whose sakes I have spoke thus much, and am sure in most parts it is a most pestilent weed to burthen.

C H A P. XXV.

Trestes of the destruction of Gosse, Broome, Brakes, &c. and how to improve ordinary Lands by Planting Fruit; and shewes how to preserve Corne from Blasting, and from Crows and Vermine, and gives a Description of the Water Persian Wheele.



AS for your Gosse, Broom, Brackling, &c. which in some places where Fuell is very scarce, and the ground very bad, to prescribe a Cure is little Advantage, but where either Land is good natured Land, or Broome and Gosse of little value; or else where men desire to Improve their Land to the utmost worth it can be raised to, It would be worth entertainment; But to give a perfect Cure thereof without considerable Cost bestowed upon it I know none; The best meanes for that, is to cut it in the hottest and dryest time of Summer, when the Sappe is drawne cleane forth of the Roor, and many times this will destroy it.

But if thou wilt be a good Improver thou must destroy

Easiest way
to destroy
broome. &

destroy it utterly, and Treble the value of thy Land in the doing of the same; which is,

Whenthou hast cut thy Broome, thy Gosse-ling, or Brackin, it matters not at what season; Then Plough thy Land, and make a Fallow of it if thou please; or otherwise, take as many Crops as thou pleasest, more or fewer, all is one to this purpose, so as thou be sure to Plough thy Roots up cleane; and then Manure thy Land with what Compost thou canst get, for I beleeeve if thy Land be made Rich and fruitfull with any sort of Soyle whatsoever, it will in a great measure mend it; But without doubt, if thou either Marle it well, and afterward Muck it very well, to mollifie, and loosen, and open the Earth; or Lime it well, or Mud it well, and afterward Muck it over with good Cow or House Dung, or any other good Soyle, as House or Street Muck, it will not only Improve it, but destroy any of these offences, or any other whatsoever that naturally ariseth from Barrennesse or Coldnesse; possibly once Manuring may not doe it, nor indeed canst thou expect so great an Improvement with so little cost; because I reckon not that any charge or cost thou expendest whilst thou hast it under Tillage, for that brings in thy charge againe in thy Crop, and so not to be put upon this Aceompt; but that which thou bestowest upon thy last Crop, for the last Crop I would advise thee to Manure to purpose, and so soone as thy Crop is got, Manure it againe, for it will also bring in thy charge in the Crop of Grasse also; and againe, whilst thy Land is young and Tender, for at this season will one load of Soyle doe as much

Excellentest way to destroy Broome, Gosse, Ling, and Brackin.

When one load of Soyle doth as much good as two.

as two, when thy Land-Soard begins to grow Tough; yea as much as three, when it growes Mossie, Rushie, or Filthy.

This a most certaine Conclusion which I have ever maintained, and proved by Practise, Ever to lay on Soyle that first Winter after Corning, and at one good Soyling have rayfed an Excellent sweet Soard the very first yeare, full as good againe as it was before upon the old Soard: And this gallant Advancing-way shall certainly destroy both Eryars, Brackin, Fearnie, (Goose-Tansie also if any thing will doe it) Golle-Ling-Heath, or any thing else whatsoever occasioneth Unfruitfulnesse, and worke an Improvement above what is Expected.

There is another Opportunitie of Improving almost any Sort of Sound Land, of which I gave touch in the last Chapter, Treating of the way of Improving the best Sort of Lands, of which it is most Capable;

Planting fruit
Trees in Hed-
ges is good
Husbandry.

That is, by Planting all Sorts of Fruit-Trees in all your Divisions, and Hedge-rows, where they shall not Prejudice one foot of Land, and where they may grow as prosperously as in an Orchard, if you will but wisely mannage them.

The Cost or Charge of this Improvement is as easie as any that can be made, if you will cast it into a Method.

That is, when you make any Partition in your Lands, which I know you will not without a Quick-set Hedge, in which in every twentie yards you may Plant a Crab-Tree Stock as well as a Thorne, onely in Setting of it be carefull of Moulding it plentifully

ly with the best Mould you can get : For that is the maine Piece in Planting as I conceive : To lay a good Foundation in every thing, prepares for a good Superstruction ; So that if the Root be Nourished from the Earth, the Root will feed both Bough and Branch more plentifully : Therefore though thy Land be naturally Barren, yet make that place all round about thy Stock as good as thou canst, with good mellow Mould, and that which smelleth well in Digging is Fruitfull, containing the Juyce of Vegetables alreadie prepared.

Chiefe Piece
in Planting all
Fruits.

Best Earth
Discovered.

The Tender Mellow Earth is betweene the two Extreames of Clay and Sand, and must needs be best : And thus having Planted thy Stock in good Earth, thy worke is halfe done, if doe but now and then, renew the same, that is, almost as it were, take up thy Tree againe, or else get well under the Roots, and so apply fresh Mould to them while they are Young and Tender : And this will cause it to Thrive without measure, and put forth a Gallant Smooth Barke, which is ever a Signe of a Thriving Tree : So that be but a little carefull in the Choosing thy Graft, both for it Selfe and the Fruit of it, and then after Grafting have but patience in preserving of it a few yeares, and here is all the Cost Required.

The Improvement may be wonderfull, if men would but Plant their Grounds as in many Countries they doe, as in *Worcestershire*, *Hereford*, and *Glostershire*, and great part of the Countie of *Kent*, they use ; Every Hedge-row is full of Fruit, and some men Plant whole Fields over, every thirty yards

How to reape
two Harvests.

yards asunder, whereby they reape a Couple of Harvests, One of Grasse or Hay, and another of Fruit.

O that it might but bee a Remembrance to this Poore Nation, of the many Opportunities of Honour, Wealth, and Glory, it is Capable of, and that I could but perswade its Natives to take hold thereof, and deliver the Earth of those Advantages it is so big with all: Judge the rest by this One Poore Piece; Were all men but Industrious herein, how might this Rich Fruit of the Kingdome almost relieve it in such a yeare of Scarcitie as this is like to be; If it would not be Bread to the Poore, as it might be in some measure, I am sure it would be Drinke, and how much Early would that preferre to Bread-Corne that is now turned to Mault: Yea, had this very yeare beene but kindly and a Plentifull Fruit Yeare, what a great helpe would it have been to *England*? And might not *England*, had it beene but generally as Ingenious, as some Members of it are, wee might have had twice as much Fruit as now wee have.

But certainly wee are afraid least Plentie should be our Ruine, or else all men that Studie so much to get Estates at second hand: Each from Other, would rather strive to gaine, at first hand Out of the Earth, the True Mother, in whose Bowells is more Wealth then ever will be drawne forth, and enough to satisfie (whether theirs is or no I know not) I am sure all other mens desires and so may be the Midwife to deliver the Earth of it: Throws, it will send forth enough, if thou wilt but lay an Egge

in the Sand of the Earth, 'twill bring it forth : Help the Birth, be the Man-Midwife (who is never in use but in greatest need) Need and Misery is likely to be greater then is Expected ; Yea, I feare then hath bene of many yeares : If God worke not above man : And man worke not now with God, by all Prudentiall meanes whatsoever And so much, and no more be said of Planting Fruit-trees at present, untill I have gained more Time therefore, and Experience therein.

And now I resolve to speak no more of any more wayes of Improvement here ; but onely One word of Preserving that Wee have alreadie, and 'tis but onely to Direct a word or two how to keepe Come from Blasting, and Seed from Vermine.

For Elasting is one of a Kingdoms Curses, And therefore to Prescribe naturall absolute Unfailing Remedie in all Places, and at all Times, is beyond my Skill, yet one Unfailing Remedie there is, as to the Removeall of this, so it is the Removeall of all Causes or Occasions of Barrennesse whatever ; And that is Sinne, the Root that brings forth all : First brought forth the Curse, and ever since the Fruit thereof : The Onely Cure thereof is Our Lord Jesus set up on the Pole, he must damne this Curse for us, and in us ; and wee by looking up to him, and our Application of himselfe to us, Mourning over him, and humbling our Soules before him ; Hereby must wee bee made Sensible of the Removeall hereof, by which, and by no other meanes it is Removable.

An unfailing
way to pre-
serve Come
from Blasting.

But the naturall Helpes as usually are Applied,
Y are.

The most usu-
all naturall
helpe.

A good helpe
to preserve
Corne pure.

To preserve
Corne from
Fowles and
Vermine.

are the Soaking or Steeping Corne in thick fat Wa-
ter, or Lime-Water, and the Mixing-Lime or A-
shes with the Corne while Wet and Moyst, that so
it may receive part of Smithom-Meale, finest of the
Ashes or Lime upon it Selfe, and Cloath it Selfe with
it, so as it may fall Clothed all over to the Earth,
and so be covered therewith : This hath beene
Highly Commended of late as a great Preservation
of the Puritie of the Corne, and in some parts of
the Chilterne Countrey, now put into great Use,
so that instead of their Usual way of Changing
their Seed, which hath beene an Old received Prin-
ciple of great Advantage, (and I verily believe is
very good Husbandrie) now they betake them-
selves hereto : Yet however, I would not Dehort,
but Perswade men to the other also ; Especially
those that use to fetch their Seed out of the Chi-
terne into other Parts or Countries of the Fieldon,
who have found great Advantage by their Constant
Change of Seed.

And this is a very good meanes for the preserving
of the Corne from Fowle, or Vermine also, which
Usually devour one part thereof before it can be co-
vered, the Lime or Ashes sticking to the Corne, of-
fends them so, that they will avoid it, and though
I say it Inricheth not the Corne, or Land, no more
then what that Substance of Lime or Ashes is, that
cleaves unto it ; Yet so much it doth, and is a Helpe
and a very good Helpe to the bettering of it ; Yet
not such a Helpe as some men cry it up to be, as if it
were as good as a Manuring, or Soyling, which u-
sually men bestow upon their Land for Wheat ; So

as I would have no man Under-vallew the least Opportunitie of Advantage any way; So I would not have any man deceive his Land, or himselfe, for herein consequently the Poore and Common-Weale are beguiled also.

There is one Poore Simple Piece of my owne Experience I dare not but Communicate, for the Preserving yearly, or Late, Sowed Corne, or for Preserving it when it begins to Corne in the Eare, from Crows, Rookes, or Jack-Dawes, and this was yet never failable to me since I found it: 'Tis no more, but Kill a Crow or two with thy Gun if thou canst possibly upon the place, where this Vermin haunteth, if not, Kill one any where else, or if thou canst not get a Crow, doe but take any black Feathers of Crow, Raven, Turkey, Pidgeon, or any other Foule, but let them be as black as possibly they can: And then take into thy Field where they Annoy thee, and in the most Obvious, Plaine, and Perspicuous places, make a great Hole of two foot over and about twentie Inches deepe, which Hole must be stuck round about the Edges with the longest Feathers, and some of the shortest layd in the Bottom of the Hole, with some part of the Carcas if thou have a Crow, and that Turfe that you digge out of the Hole, or else that Earth, being layd round upon a heape, you may stick round with Feathers also; The Feather of one Crow will dresse two or three of these Holes, and about halfe a dozen or eight of these Holes, will serve for a Field of ten or twelve Acres; Which being done, and made on the highest Ground, observe the Creatures, whether

An unfailing
Prevention of
Crows,
Rookes, or
Dawes from
Corne.

they will fall in that Field or no ; All the while those Feathers remaine fresh, which may be will a month; Unlesse great store of Raine, or Weather, beat them much, and then they must be Renewed once againe, if thou seest need : And if they Annoy that place, or once fall thereabouts, I am much Deceived ; I know they will not, you shall see as soone as ever you have made but one Hole, and they take notice of it, how great offence they take if One Crow but discover, it there is worke Enough for him to call his Fellowes to behold the Wonder, hee'l gather all the Crowes thereabouts to behold the same, which they will View with such Admiration, as will make you Admire the Creatures astonishment. The Reason is, as I conceive, no more but an Affrightment, or Astonishment, by a New and Unexpected Object, or else from that Antipathie they beare, or some misgiving, or feare of being Intrapped themselves, that possesseth them, that they dare not come neare the same ; Neither Gun-powder which many use to drusse a Crow with all, nor Constant Shooting of them, or Killing of them, shall not have the like Effect ; It cleares all the Field of every one to thy hearts Desire.

The Reason
of the Crowes
offence taken.

I promised to give a more Fuller Description of the Persian-Weele, or Water-Wheele, to rayse Water out the Streame that Drives it.

And for the more Clear understanding of the Description of it, Imagine thou stoodest just before the Face of the Weele, as it is Planted in the River, to View the same as the Water Drives it ; but this is of a very Plaine Weele, and I conceive a Better and more Exact one may be Discovered.

1. The

1. The height of the Wheele may be betwixt fifteene foot to thirtie foot, or more if thou pleasest, according to the strength of thy Water, and the height thou desirest to raise it, made just like an ordinarie Under-shoot Mill-Wheele.

2. The breadth of the Sole or Ring of Wheele may be also according to thy pleasure, from fifteene Inches to thirtie Inches broad, Labeled as other Water-Wheeles are.

3. The Buckets or Kans to take up thy Water, if thy Wheele be about fifteene foot high, may be Six in number, or Eight if thou please.

4. The Buckets to such a Wheele, just so long as the Wheele is broad: The Eucket is made with four boards nayled to a bottome-board: Two sides run upon a strait Line, which are those planted to the Ring of the Wheele, and to the Ladle-board, and the other two runne towards an Angle-taper, declining from twelve Inches in the But or bottome, to six Inches at the mouth one way, and from eight Inches at the bottome to foure Inches at the mouth the other way; the mouth is open alway.

5. The Buckets fill themselves in the bottome as the Wheele goes, and so lose some of the Water in coming up, and when they come almost to the Top; A Trough about three or foure foot long is Planted, as it were in the Ring of the Wheele neare the Spokes of it, and takes the rest of the Water as it delivers it out at the Top, which may be about halfe the Buckets first take up, out of which Cisterne thou mayst either in Pumps or Trenches lead thy Water, for Watering a House or Land as thou pleasest,

The fuller
Description of
the Persian
Wheele.

fest, up to that Leveil ; It matters not how low the
Whee goes, nor for any greater fall or height of
Dam then will drive thy Wheele, which may be a-
bout two foot ; It is of very speciall Use ; So hast
thou as Plaine a Description as I can give thee, untill
thou have the Figure or Forme Delineated, which
will give more light to the Discoverie of it, which
shall among my other Tooles be Desciphered, with a
farther Addition of more Ease and Exactnesse in it,
then is here Described if God give an Opportu-
nitie.

*Causes why
the Reader di-
gest not the
Discourse.*

So I have done for present ; Which Particulars, if
thou hast seriously perused, although thou hast passed
many things offensive possibly, which hath not bene
the Authors desire justly to Administer : And if any
thing unjustly hath offended he is very sory, & he p.
and verily beleeves, it either ariseth from want of a
Cleare Representation of his meaning in more Sig-
nificant Tearmes, or Artificiall Language to the Rea-
der (which the Rudenesse of this Discourse would
not well admit) or it may arise from the Readers
mis-understanding of the Authors Sence, or mis-
conceiving of his way of Practise, which I believe
upon a second unprejudiced Consideration, will
more Clearely Represent it selfe unto him : As for
the Curiositie in its Composure, or Exact Method in
the handling, beare with the want thereof, thou
must expect no better from a Treatise of this na-
ture, Rudely Digested out of Confused Principles
and Notions, and from Experiences, most of them
Compleated, but some of them in the present Pra-
ctise, which when thoroughly Experimented, (If

the Weake Discoveries find Acceptance with thee, and shall appeare with the least Advantage to the Common Good) if God but please to give Oppor-
 tunitie, he may present thee with a second Part to the same Tune, Wherein he hopes to Compleat or make up the whole Art of Practicall Husbandrie, or give thee in a whole New Plantation of Old England; And shall further Discover or Describe, the severall Tooles or Instruments here spoke in Figures (which I hope are understandable as they are alreadie Presented) And also hold forth unto thee, the Mystery of Planting all Sorts of Fruits, with most Ease and Speediest raising them to Perfection, and to Continuance longest & fruitfull.

The Authors
 promise to
 mend.

As also something may be Digested after the utmost Improvement made upon thy Lands, how to make the best Improvement of thy Stock, to the greatest Advantage it is possibly able to yeeld thee and Kingdome, or what else shall fall into my Experience, in the *Interim* as fit for Publique Discovery under the nature of Improvement; Thy loving Acceptance hereof and Practise therein will undoubtedly Command.

And though I have in some things beene too Tedious, which I could not well avoyd, yet I hope I have dealt truly with thee, I am sure in my owne Experiences, I can make good unto the Eye what I have Presented to thy Eare, and what I have also seene as other mens, I have Represented them in Truth as neare as my Abilities were able to judge of them, or I able to receive their Information; Therefore I have acquainted thee where thou mayst
 Dis-

The Author
Cleare, his E-
deavours are
for Publique
good.

Discover Truth in all : And if I have taken any thing up, by bare Information it may faile in some Circumstances, but I hope, and doe in good measure know it doth not, nor shall not faile, in the Substance thereof ; And if I shall here but make good, or Clearly hold out a Double Improvement, it will be worth Acceptance, (to me it hath beene worthy Respect and Imitation, when I could but Advance any Land, one halfe or third part, by any Information) but if I have made out Clearly to the Kingdome, the severall Opportunities of Such Vast Improvements, that there is such Lands, and such Capacities to Advance them, as I have held forth in my Title Page, and have also as truly shewed that they have beene done already, and may be done for future, with the severall Wayes, Rules, and Meanes, for their Accomplishments : And that also at so Rational, Easie, and Familiar Cost and Charges, and Principally and Chiefly by the Poore Mans Labour ; who Cryes for it, and must have it : I hope I shall not be Accompted, or at least not Scandalized as a Projector, but as a Poore and Faithfull Servant to his Generation. Farewell.

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ding to that Good, which it Relates to, as that
is more, or lesse ample.

Written by **HENRY PARKER** Esquire.

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Doing all things that doest none:

Busynesse too vast makes thee a Drone.

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